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PROGRAM U. S. Radio Farm School: RELEASE Mon. January 3/27.

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SHORT COURSE: Livestock Barns and Shelters.

LECTURE No. 6: Hog Houses.

ANNOUNCEMENT: In the next lesson in the U. S. Radio Farm School we're going to talk hog houses. But before we get into that interesting subject we want to remind all the new comers that Uncle Sam is furnishing the 216 radio lessons, printed in 24 attractive booklets to all regularly enrolled students. There is no charge. Just send in your name and address and at the conclusion of each short course you receive a set of the booklets.

(NOTE: The characters speaking are: The Professor himself; and Woodford, Grimes, and Coates, members of the class.)

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(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order! Let's see -- we were going to talk about hog houses --- Grimes! -----

GRIMES: Yes, sir.

THE PROFESSOR: What kind of shelter do you have for the hogs on your place?

GRIMES: I've got an old shed. It's not much. But, I guess it's good enough for a hog.

THE PROFESSOR: You think anything's good enough for a hog, eh? ----- Do you remember that old story about "The Three Pigs"?

You recall that the First Little Pig built himself a house out of straw. The Wolf came along. He blew down the house and ate that pig.

The Second Little Pig made his house out of sticks. The Wolf got him too.

But the Third Little Pig built his house of brick --- it had a chimney, too ---- don't forget the chimney. ----

The Wolf couldn't get into that house. Finally, you remember, the Wolf tried to come down the chimney. The Little Pig fired up. That was the end of Mr. Wolf.

There is a lesson in that juvenile story for the hog raiser. The good, substantial, warm, dry and well-ventilated hog house helps to keep the wolf away. It means bigger profits.

And as for that chimney we were just talking about, you will see the reason for it if you will glance at the animals on your farm. Look at the horse and fowl, the cow and calf, and the sheep and lamb. They all have good coats to shelter them from bad weather. But little pigs are almost naked.

Central farrowing houses, which provide for a number of sows under one

roof, should be built with brick chimneys -- to that stoves may be placed in the alleys between the pens -- to furnish heat in cold, damp weather. We've been slow coming to it --- but a good many farmers now are using the same plan as the Wise Little Pig in the story.

If fact, they've even improved on his house. They realize now, that sun light is a great factor in getting little pigs started right. They plan for plenty of sunshine ---- (As if interrupted) What is it, Woodford?

WOODFORD: Just how are those central farrowing houses arranged?

THE PROFESSOR: Well, there are two types. One type has two rows of pens with an alley between. The other type has one row of pens with an alley back of them. For cold climates, both types are built extending lengthwise east and west. They have windows arranged in the south wall and in the roof so that the pens will get the greatest amount of sunlight --- (As if interrupted) Yes, Coates?

COATES: What is the difference for southern conditions?

THE PROFESSOR: Well, for southern conditions, the central farrowing house need not be so warmly built. But it should be substantial and weather proof. It should be made higher so as to provide more air space above the animals in warm weather. It should have no roof windows. It should be lighted from the sides and should extend north and south, with outside feeding pens on each side. It should, however, also have a chimney so that heat can be supplied when needed.

In fact, all central houses regardless of climate should have outside pens for feeding sows with suckling pigs. They also make for cleaner and drier inside pens.

WOODFORD: Professor, what kind of flooring would you put in those houses?

THE PROFESSOR: That's a very important question, Woodford. Many hog raisers claim that concrete is too damp and cold. Wood is insanitary and generally unsatisfactory. A very satisfactory floor can be made of hollow tile laid flatwise and covered with about three-quarters or one inch of cement mortar. Preferably, it should be laid on a cinder or gravel fill. It wears well, is sanitary, and provides insulation against ground temperature and moisture. (As if interrupted) All right, Coates! What's your question?

COATES: I wanted to know what size the pens should be.

THE PROFESSOR: Well, the pen partitions should be removable so that the house may be used to better advantage for fat hogs and bred sows. Then, too, each pen should be provided with guard rails. The guard rails should be about 9 inches above the floor and should project about 8 inches to prevent the sow from crushing her pigs when she lies down against the side of the pen. Counting from inside of the guardrail, the pens should be 7 feet by 5 feet 8 inches. The alley between the two rows of pens should be 6 feet wide.

WOODFORD: Professor, how about the individual houses for one sow -each Some hog men use them altogether.

THE PROFESSOR: Yes. Both central and individual houses are used with success. In many instances, a combination of the two seems desirable -- That is, your central house can be used for farrowing and the pigs can then be removed to the individual house when they are a week or 10 days old.

The individual house is either A-shaped or the bungalow or box type with a gable roof. A-shaped houses are built 7 feet by 7 feet and have guard rails only at the end. The slope of the roof provides the protection on the sides. There should be a small opening at each end near the top of the A for ventilation It should also have a hinged door in the roof. In the box type of house one half of the roof is hinged. That permits plenty of sunlight and ventilation and allows the herdsman easy access to the interior of the house.----(As if interrupted) Well, Grimes?

GRIMES: What type do you use for fattening hogs or for bred sows?

THE PROFESSOR: You don't need any special type. Any building you use, however, should be dry and warm enough to be comfortable when well bedded. ----

Are there any other questions? ---- If not we will close with just this word. Remember, the essential features of a good hog house are dryness, warmth, sunlight, summer coolness, ventilation, convenience of arrangement, durability, reasonable first cost and low maintenance cost.

Next week at this time, we will take up the simpler problem of shelter for sheep.

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UNITED STATES
DEPARTMENT
OF AGRICULTURE

Radio Service

OFFICE OF
INFORMATION

PROGRAM U.S. RADIO FARM SCHOOL FIRST RELEASE Wed. Jan. 5.

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SHORT COURSE: Management of Poultry Breeding Stock.

LECTURE No.6: Vitamins and Minerals.

* * * * *

ANNOUNCEMENT: Our grown-up boys and girls, members of the U. S. Radio Farm School are back again after the holidays already for the first lesson on "Vitamins and Minerals for Poultry Breeding Stock". Our school master is speaking for authorities on the subject in the U. S. Department of Agriculture.

(NOTE: The characters speaking are: The Professor himself, Wallace, Horton, and Wilder, members of the class.)

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WALLACE: (Aside -- as if privately to Professor.) Professor!

THE PROFESSOR: What is it, Wallace?

WALLACE: Last time you talked some about minerals and green feed ---

THE PROFESSOR: Yes -- I'm going to have something more to say about that today.

WALLACE: Why is green feed so important for feeding chickens?

THE PROFESSOR: Well, green feed contains practically all the vitamins.

WALLACE: What are vitamins, anyway?

THE PROFESSOR: Well, Wallace, we don't know what they are --- but we do know what they do ----

The rest of the class should hear this. (Raps on desk as if for order the louder and more directly to class) The class will be in order!

I take it that all of you keep crushed oyster shell, clam shell, or limestone grit before your hens all the time.

You know, these feeds supply the lime which goes to make the egg shells. If there is not lime enough in the ration, egg production will be lowered. Fine oyster shell or limestone grit is especially necessary as the pullets start laying.

Of course, chickens need minerals for other purposes besides manufacturing egg shells. They must have minerals to build up their bones. Minerals also play an important part in connection with the digestive acids and changes in nutrients. Although lime and phosphorus are the most important, there are others. For instance, common salt supplies sodium and chlorine, two essentials in animal life.

But minerals are not so hard to get. Meat scrap, fish meal, wheat bran, wheat middlings, green feed, and milk all supply considerable mineral matter. Ordinary meat scrap contains considerable bone, so you need very little bone with that kind of meat scrap. But if you feed high-protein meat scrap or vegetalbe proteins like cottonseed meal, you should supplement the mash with 4 per cent of a mixture of 3 parts ground bone, 1 part ground limestone, and 1 part common salt.

You can best supply the minerals in ordinary rations by adding bone meal. Add 2 to 5 per cent in the mash for both chicks and hens. Both these mashes should contain 1 per cent salt. From 2 to 3 per cent of ground limestone may be added to laying mashes to help prevent the laying of soft-shelled eggs.

However, there may be planty of minerals in the feed ---- and yet the chickens may not be able to use it. Certain food factors, known as vitamins, must also be in the feed. If they are lacking, the chickens may be unable to properly assimilate the minerals. For instance, the feed may contain plenty of lime and phosphorus, but if it does not also contain the necessary vitamin, the chickens' bones may fail for lack of these minerals.

There are five vitamins now known. Their exact nature is still a mystery. They are known by their effects. They contribute neither energy nor tissue building. But they tend to control and regulate certain of the life processes----------Miller, go to the blackboard there,please.

Now write down the letters A----B----C----D----and E. one under the other.
Those letters represent the five vitamins----------

No rub out --C--. We don't need that in poultry rations.

After the A up at the top of the board there - write "Makes young chickens grow"

After the B on the next line -- write -- "Aids Digestion."

After the D, now write ---"Prevents Weak Legs in Chicks."

And there at the side of the E -- write "Promotes Fertility."
Now let's go back and list some of the feeds which contain these four important vitamins A, B, D, and E. Make a little bracket to the right of each of those sentences.

All right, vitamin A, which regulates the chicken's growth, is found in all green feeds, cod-liver oil, yellow corn, egg yolk, tomatoes, yellow carrots, and milk.

Now vitamin B, which improves the appetite and digestion, is found in all green feeds, corn, wheat, oats, middlings, and bran.

Now after the next line. Vitamin D, which prevents rickets or weak legs in chickens, is found in some green feeds, in milk, cod-liver oil, and egg yolk.

Well, Miller, note down that vitamin E. which promotes fertility, is found in some green feeds, wheat germ, germinated oats, yellow corn, cottonseed oil, olive oil and milk. Next week we will talk about some other things which promote fertility. -----(As if interrupted) Well, Wilder?

WILDER: Just how would you feed to get in those vitamins?

THE PROFESSOR: Well, the usual poultry rations are usually fairly well supplied in the essential vitamins. That is, if they are supplemented with green feed and are moderately high in yellow corn and wheat middlings --- and especially if the ration includes some milk. (As if interrupted) Yes?

HORTON: You mentioned that vitamin D prevents weak legs. Don't sunlight do that, too?

THE PROFESSOR: Yes, direct sunlight is a substitute for vitamin D. That shows the great importance of direct sunlight for poultry of all ages. But ordinary window glass screens out the rays in the sunlight which help prevent weak legs. Sunlight which passes through glass will not do.

If the chicks are confined to the brooder house or are getting very little direct sunlight, you would do well to add cod-liver oil to the ration. Cod-liver oil, however, is not needed if the chicks are out of doors on a good grass range. And it should be left out of the ration of growing chicks two weeks before they are marketed. It not, their flesh may have a cod-fish flavor. ----(As if interrupted) Well-- What is it, Wilder?

WILDER: How much would you give 'em?

THE PROFESSOR: One quart of oil to 100 pounds of mash. Mix the oil with a small quantity of feed -- then incorporate that in the entire mash.

WALLACE: Professor, I don't quite get the idea of the cod-liver oil--- it's a lot different from green feed --

THE PROFESSOR: Yes. But as I pointed out, it contains vitamin A and D You see, the cod fish lives on other small marine animals. They in turn live on tiny green plants in sea water. That brings us back to green feed.

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UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL RELEASE Second Wed. Jan. 5, 1927

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SHORT COURSE: Lice and Mites.

LECTURE NO. 6: Chicken Mites.

ANNOUNCEMENT: Suppose we all have a little stretch while the Professor winds up for the next 5 minutes talk on "Chicken Mites". If there is any one in the audience that has not yet enrolled in the U. S. Farm School and been placed on the U. S. Department of Agriculture's mailing list for the 216 printed radio lessons, we especially urge that he do so at once. The large demand for these 24 booklets makes it advisable to not delay your request.

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(NOTE: The characters speaking during this lecture are; The Professor himself; and Wilder, Brooks, and Roberts, members of the class.)

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(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order!

How many of you know anything about mites? --- Hands up! ------

-------Well, well, well ---- That's about everybody in the room.

We'll just see what you know --- from the way some of the hands went up, some of you can probably speak with feeling on the subject ----

Jack Brooks! --- Where do the common chicken mites live?

JACK BROOKS: They hide in the cracks about the roosts and nests inthe daytime -----

THE PROFESSOR: Then they don't live on the chicken as do chicken lice?

JACK BROOKS: No, sir. They just feed on the chickens at night ------- except they often feed on sitting hens, even in the daytime.

THE PROFESSOR: These night prowlers are out for blood. They must have blood.-

(As if interrupted) What's the matter, Roberts? Don't you agree with what Brooks said?

ROBERTS: Professor, I know I've been mites on chickens in the daytime.

THE PROFESSOR: Probably so. Chickens sometimes carry a few mites -- maybe

a hundred or more -- in their feathers during the day after they've spent the night in infested quarters. But most of those mites will leave the chicken the following night. In some cases, however, the mites stay on the chickens during three days and nights. Nearly all have drunk their fill and left for their hide-outs by the third night.

As a general rule, however, the statement stands that the mites feed at night. They do not breed among the feathers of the fowls. Each female lays from 25 to 35 eggs from 3 to 7 at a time. The eggs are deposited in the cracks in which the mites hide. Under favorable conditions, the eggs hatch in two days, and a complete generation of mites from eggs to adults is developed in a week's time. At that rate, they soon make up in numbers what they lack in size. -----

But, Roberts, what effect does their blood-sucking have on the chickens?

ROBERTS: It cuts down the number of eggs produced -----

THE PROFESSOR: Yes.

ROBERTS: It puts the hens in poor condition -- reduces the quality of the meat.

THE PROFESSOR: Yes. The losses to poultry raisers in this country on account of mites are tremendous.

ROBERTS: Yes, sir! They got so bad in my hen house last year -- they killed a lot of my hens: I found a couple of sitting hens dead on the nest. And I lost several settings of eggs by hens quitting their nests. You could just see chickens all around getting droopy and weak. Their wattles and combs got downright pale.

THE PROFESSOR: When thousands of mites get to sucking the blood of a hen, it's bound to cause trouble. Their habit of hiding in the cracks of the hen house makes them hard to get at --- Wilder, what would you do in the case of a heavy mite infestation like that?

WILDER: I never have much trouble with them. I give my hen house a good white washing now and then. I put about one pint of crude carbolic acid to each gallon of whitewash.

THE PROFESSOR: Well, that's a good way to control them --- when the poultry houses are well cared for -- and the mites don't get a good start. But when the premises become badly infested, it's best to spray the buildings with the wood preservative known as carbolineum, or with crude petroleum. In heavily infested houses, the mites are to be found in all parts of the buildings including the roof. The spraying should be done with a force pump -- so that the mites hidden deep in the cracks will be reached.

ROBERTS: Professor, will one spraying finish all the mites?

THE PROFESSOR: If it's thorough -- often it will. But it is usually better to also apply carbolineum or crude petroleum to the roosts and nests occassionally with a brush. Give the treatment in the morning, so the material will have time to dry into the wood before the chickens go to roost.

And speaking of roosts, put up new ones if the old ones furnish many hiding places for mites. And in putting them up -- never nail them to the side of the building -- fix them so they can be taken out easily.

When chickens are to be transferred to new quarters, it is well to keep them in a quarantine pen for three days and nights -- so the mites will leave them before they go into the new building. The roosts in the new building and in the quarantine cage, should be treated in order to destroy any mites which have left the chickens. ------------

Next week I want you all to come prepared to recite on rats, and skunks, and common two-legged chicken thieves.

UNITED STATES DEPARTMENT OF AGRICULTURE
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PROGRAM U.S. RADIO FARM SCHOOL: RELEASE First Fri., Jan. 7.

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U.S. Department of Agriculture

SHORT COURSE: Feeding Dairy Cattle.

LECTURE No. 6: Planning Next Summer's Feed.

ANNOUNCEMENT: We start our U. S. Radio Farm School at this time with a talk of special interest to dairymen on the subject of "Planning Next Summer's Feed." Please keep in mind that copies of all these lessons, are free for the asking. Alright Professor:

(NOTE: The characters speaking during this lecture are: The Professor himself; and Spencer, Norton, and Allen, members of the class.)

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(Four of five raps -- as if on desk)

THE PROFESSOR: Members of the class will please have pencils and paper ready! ----------

No, Spencer --- I did not say to take notes yet. I'll tell you when to start. --------

We are just getting started on a New Year. We do not want to make the same mistakes we did last year - or the year before. In order to avoid them -- we've got to look ahead.

Your cows are off pasture now. You are giving them dry feed. But it's a good time right now, to think of what you are going to give them next summer. -------

Bob Norton! ---- How were your pastures last summer?

BOB NORTON: They got pretty short and dry during the hot weather.

THE PROFESSOR: Did that cut down your milk production?

BOB NORTON: Y-y-yes --- it did.

THE PROFESSOR: Are you going to let that happen again this year? Have you made plans to improve your pasture and to provide other succulent feeds to take its place? ------

Many farmers think they can depend on pasture alone for high production. But that's a mistake. Ordinarily, it is poor practice and uneconomical to try to save feed by depending entirely on pasture. It is well ----- (*As if interrupted*) Yes, Allen. What is it?

ALLEN: Won't pasture furnish enough feed for full milk production -- That is, if it's fresh and green --- and there's plenty of it.

THE PROFESSOR: Possibly so. But not more than one pasture in ten will come up to that standard. Therefore, every dairyman should give consideration to the improvement of his pasture.

BOB NORTON: What would you do to it, Professor?

THE PROFESSOR: Well, -- the application of manure, or top dressing with commercial fertilizer and frequent mowing will do wonders for improving pastures.

As most pastures are overstocked and tend to get short and dry during the hot weather, it is well to supplement them. Silage, soiling crops, and other feeds of that nature may be used. Under some conditions, it will also pay to feed grain and hay -- to keep up the production of the higher producing cows in a herd. (*As if interrupted*) Well?

ALLEN: How can you tell whether it will pay to feed grain in pasture?

THE PROFESSOR: That will depend largely on the amount of milk the cow is giving. A cow giving a small quantity of milk will ordinarily not pay for the grain. Big producers, however, will pay for it. In fact, it is poor economy not to give grain to high producing cows on pasture. And please remember, that cows getting grain in the summer will give more milk the following winter when on dry feed. (*As if interrupted*) What is it, Spencer?

SPENCER: How much grain would you feed, when the cows are getting good pasture?

THE PROFESSOR: I was just coming to that --- Of course, that depends upon the kind of cows you are milking and the amount of milk they are giving. -- also the richness of the milk. What kind do you have, Spencer?

SPENCER: Mine are Guernseys.

THE PROFESSOR: All right -- all of you get ready to take down a few figures. I will give you a guide for grain feeding while your cows are on pasture next summer. Ready!

(*Slow*) Cows giving rich milk such as Jerseys and Guernseys, ---- 20 pounds of milk a day, should get 3 pounds of grain feed. One which produces 25 pounds of milk, should receive 4 pounds of grain. One which gives 30 pounds of milk, should be given 5-1/2 pounds of grain. If you have any that give 40 pounds of milk a day, each of them should receive 8 pounds of grain feed.

ALLEN: How about Holstein cows? Would you give them the same?

THE PROFESSOR: No. Here's a schedule for animals giving milk that is not as rich, such as Holsteins, Ayrshires, Brown Swiss and other breeds.

(Slow) Cows of these breeds, and including grades, that give 25 pounds of milk, should get 3 pounds of grain. Those which produce 30 pounds of milk, you should give 4 pounds of grain. The ones which yield 35 pounds of milk, you should feed 5-1/2 pounds of grain. Those cows which give 40 pounds of milk, you should give 7 pounds of grain feed. And to those which produce as high as 50 pounds of milk a day, you should give 9 pounds of grain.

These recommendations apply only if the pasture is good.

SPENCER: Professor, what kind of grain ----?

THE PROFESSOR: A good grain mixture for feeding with pasture can be made from ordinary farm grains ---- Such as corn, oats, bran, and barley.

ALLEN: How about feeding something to take the place of the pasture ----?

THE PROFESSOR: Well, the cheapest substitute for short and dry pasture -- is probably ---- a summer silo full of good silage.

The summer silo, you know, should have a small diameter so that a deeper layer of silage can be fed every day to prevent loss by spoiling. Silos 10 or 14 feet in diameter will be a good size for herds ranging from 20 to 40 cows. If the summer silage is not needed, or if any is left over, you can feed it the following winter. Or even save it until the next summer. Many of you dairymen could well afford to build a smaller silo just for this purpose.

Soiling crops are also grown, cut, and fed in the green state to supplement poor pasture. In general, they are a little more expensive than silage; account of the labor of cutting and feeding. You can plan a series of crops that will furnish green feed through the summer.

Oats and peas, Sudan grass, green corn, soy beans sorghums and alfalfa make good soiling crops. But write to your State agricultural college or see your county agents. They will tell you about the crops to grow. And the time to plant them. If you plant them at proper intervals, you can have green feed available all summer.

BOB NORTON: How about putting calves on pasture, professor?

THE PROFESSOR: Well, I'll let you all think about that until next time. That and other questions of dairy calf feeding will be taken up next week.

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UNITED STATES DEPARTMENT OF AGRICULTURE

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PROGRAM U.S.RADIO FARM SCHOOL FIRST RELEASE JANUARY 3.

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U. S. Department of Agriculture

SHORT COURSE: Animal Health and Sanitation.

LECTURE No.6: Foot-and Mouth Disease.

ANNOUNCEMENT: In the U.S.Radio Farm School this evening we're going to continue that interesting and important series of talks on Animal Health and Sanitation. The subject of this lesson is Foot and Mouth Disease. The Professor will give you some of the interesting side lights on this dreaded disease.

(NOTE: The characters speaking during this lecture are: The Professor himself, Kendricks, Moore, and Jobson.)

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(Four or five raps --- as if on desk)

THE PROFESSOR: The class will give me their attention, please!

I'm knocking on wood to bring you to order.

If I were superstitious, I guess I would be knocking on wood, on account of what I am now going to say.----------

More than a year has passed without an outbreak of foot-and-mouth disease in the United States.

In fact, the United States has been entirely free from foot-and-mouth disease during the past forty years, except for comparatively short intervals on a few occasions.

All of which, reminds me of one of the first verses I ever learned in school:

"Be on your guard
From day to day
When least expected
Comes the fray."

This menace to animal health is one of the most intensely infectious maladies known. It attacks cattle, swine, sheep, goats, deer, and even, on rare occasions, human beings.

The virus which carries the infection may be transmitted by the infected or exposed animals; by human beings who have been in contact with the infected stock; by dogs; by cats; and by raw milk, hay, straw, and in many other ways. No effective practical vaccine or serum for the disease has yet been discovered.

The first three outbreaks in the United States, those of 1870, 1880, 1884 were started by diseased animals imported into this country. The 1902, 1908, 1914 and two 1924 outbreaks are believed to have been started by imported contaminated products or materials and not by means of live animals.

At the present time, this plague is known to exist in many parts of the Orient; in the Netherlands, Austria, Czechoslovakia, Denmark, France, Hungary, Italy, Poland, Russia, Spain, Switzerland, and the Balkan countries in continental Europe; in Brazil, Argentina, Uruguay, and other countries of South America; and in southern Mexico.

Stringent measures are now being used to guard against its introduction into the United States. Recently, fresh meat from the infected countries was added to the list of products prohibited entry into this country. But in spite of all precautions, infection may gain entrance.

KENDRICKS: Suppose it did, Professor -- We've gotten rid of it before, haven't we?

THE PROFESSOR: Well, Kendricks, if you'd even been where there was foot-and-mouth disease, you wouldn't ask that. Yes, we have always successfully stamped out this plague --- but we haven't had any picnic doing it!

You know the prodedure in case of foot-and-mouth outbreaks, do you not? We promptly quarantine infected areas. We immediately kill, bury or burn all infected and exposed animals. Then we thoroughly clean and disinfect the infected premises-----(As if interrupted) Well, Moore?

MOORE: Killing cattle that way costs a whole lot, don't it?

THE PROFESSOR: Killing many thousands of animals, of course, means destroying millions of dollars worth of property. But the entire cost of eradicating the outbreaks that have occurred in this country has been less than the livestock producers would lose each year -- if the disease were to become permanently established.

MOORE: Couldn't it be stamped out -- just by quarantining the cattle?

THE PROFESSOR: They tried quarantine and treatment in Europe. Every place they tried it, the infection became firmly established. It became so firmly established that they have not been able to wipe it out. In such countries widespread outbreaks often occur and cause heavy losses to the livestock industry --- No -- We can't afford to temporize with foot-and-mouth. In case of an outbreak, we must kill and burn.

KENDRICKS: Professor, foot-and-mouth disease don't kill so many cattle itself, does it? A fellow told me the other day, that the rate was only 2 or 3 per cent in mild outbreaks and only about 15 to 25 per cent in a bad outbreak.

THE PROFESSOR: He was evidently referring to adult animals, among young suckling calves and pigs the rate is extremely high. Frequently 80 or 90 per cent of the animals less than two weeks old die from the effects of the disease.

But more serious than the losses of animal life -- are the losses from other sources. Those which survive lose much flesh. It costs money to put that flesh back. The disease also reduces milk production -- usually from 40 to 70 per cent for several weeks. Then there are also more lasting injuries which render cows, for instance, permanently valueless for breeding or for milking purposes.

The U.S.Department of Agriculture has a Farmers' Bulletin on the subject of "Foot-and-Mouth Disease" It's Number 666. You can get more details from it.

There is no question but that promptness pays big in dealing with foot-and-mouth. The quicker it is discovered, the more readily it can be stamped out. I want to caution you farmers here to keep a sharp lookout for suspicious cases.

JOBSON: Professor, how does it show up on a cow?

THE PROFESSOR: The animal has fever. Blisters form on the tongue and elsewhere in the mouth. They also form on the skin above the hoofs and between the toes of the animals. They are followed by salivation, loss of appetite, lameness, shrinkage in flesh and in the milk flow. (As if interrupted) Well, Jobson?

JOBSON: What should we do -- in case we found a suspected case?

THE PROFESSOR: Report it promptly to your State veterinarian or the chief of the Federal Bureau of Animal Industry at Washington. Our country is now free from foot-and-mouth disease -- it is to your interest to keep it so.

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UNITED STATES DEPARTMENT OF AGRICULTURE
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PROGRAM U. S. RADIO FARM SCHOOL Second RELEASE Fri.Jan.7.

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SHORT COURSE: Dairy Herd Management.

LECTURE NO. 6: Testing Herds for Production.

ANNOUNCEMENT: "Testing Herds for Production" is the next lesson on the U.S. Radio Farm School. The second installment of printed material supplementing these radio talks will be sent out at the end of this month to all enrolled students from the U. S. Department of Agriculture. If you wish the first 12 of the 24 booklets without delay instruct us to enroll you in the Farm School. No charge -- just send us your name.

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(NOTE: The characters speaking during this lecture are: The Professor himself, Weller, Brown, and Norton, members of the class)

* * * * * *

(Four or five raps -- as if on desk)

THE PROFESSOR: I'm going to give the class a test today.

A test on testing dairy cows for production.

Now, George Weller, we'll start with you. What is the value of testing anyway?

GEORGE WELLER: It's been the chief means of increasing the average production per cow.

THE PROFESSOR: That's right, my boy. It certainly has. Without testing, you can never really know whether the production of your herd is increasing or decreasing. It is the yard stick or ruler by which you can measure what your cows are doing -- and so decide which to keep and which to get rid of. -------

But most all of you here will probably agree that testing is an important item in proper herd management. At least, I hope your own experience coupled with what I've said on this subject before, has not been altogether lost. But even though you do admit the value of testing, most of you are not willing to do this testing yourselves in a systematic and regular manner. For that reason, cow-testing associations have grown very fast ----Weller, go ahead and tell us what a cow-testing association is like?

GEORGE WELLER: Well, in the usual cow-testing association 15 to 25 or more farmers get together and agree to put their whole milking herd, on test for a year -- They have a constitution and by-laws ---

THE PROFESSOR: Yes -- how about the actual testing? Who does that?

GEORGE WELLER: They hire a tester. He visists the farm of each member once a month. He weighs, samples, and tests the milk of each cow ------

THE PROFESSOR: Tests it for butterfat, eh? ---------

GEORGE WELLER: Yes, he tests the milk of each cow for butterfat. He also does the figuring and keeps a record of the feed each cow eats. ------

THE PROFESSOR: In other words, he keeps the farmer's herd record book up-to-date. --------------How much does that cost the farmer?

GEORGE WELLER: Anywhere from $36 to $50 a year -- depending upon the size of the herd and the salary paid the tester.

THE PROFESSOR: Well, Weller ---You must belong to a cow-testing association yourself. I see you know the general principles, anyway. Of course, purebreds and grades are both tested in cow-testing associations. But purebreds may also be tested by means of the Register of Merit and advanced registry tests which are referred to as official testing -------Brown, you may tell the class how official testing differs from the cow-testing-association plan.

BROWN: The testing is done by a representative of the State agricultural college and the record is authenticated by the breed association. The record is officially recognized by the breed association and by the public in general.

THE PROFESSOR: Yes that's right. It is an incentive for the development of purebred animals. It is also the basis on which many of the breeding animals are selected. It is a big factor in determining the value of dairy cattle in herds where it is used -----But, Brown -- Who is responsible for the accuracy of these official tests -- the breed association or the State agricultural colleges or experiment stations?

BROWN: The State institutions assume the responsibility. If you want one or several purebred cows tested, you apply to the breed association. The breed association then asks the State agricultural college in your particular State to conduct the test. The college then sends a test supervisor to your farm. He watches the milking of each cow on test, weighs and samples the milk, and makes a test for butterfat. He makes out a complete report of each cow's production. He is hired by the college and receives his orders and salary from it. You pay the college for the service.

THE PROFESSOR: Good. That's the way to answer. Now, Norton, maybe you can tell us about the herd test plan, recently started by the Ayrshire Breeders' Association.

NORTON: Well, it's really a combination of the cow-testing association and official testing plans.

THE PROFESSOR: What are its main features?

NORTON: It includes both feed and production records; the whole herd, both purebreds and grades, is on test; and it is considerably cheaper than official testing.

THE PROFESSOR: Yes. ---- Now any of you who want more detailed information about these different plans, write to your State agricultural college. The essential features of the regulations governing all testing are the same in all States. However, the State colleges have some leeway in carrying out the details. For that reason, there is a slight variation in the way testing is done in different States. -- If there are no questions, we'll close here.

Next time we will take up the question of Stable and Yard Management--- ------Yes ---What is it, Norton?

NORTON: In talking about the value of testing, Professor, there wasn't anything said about use of testing for proving the bull.

THE PROFESSOR: Thanks, Norton ----You are right. Cow-testing association records and official records are being used more and more for that purpose. If you are going to improve the milk production of your herd through breeding, you will need proved bulls as herd sires. 'By their fruits ye shall know them. The ability of a bull to transmit to his daughters a tendency to high production, can only be definitely determined by comparing the milking records of his daughters with those of their mothers. Unfortunately, many bulls have been killed or otherwise disposed of before such records were available.

Well, I didn't get around to many of the class today. I know some of you have been dodging questions. One of these days, however, I'm going to spring a written test on you, so you had better come prepared.

UNITED STATES
DEPARTMENT
OF AGRICULTURE

Radio Service

OFFICE OF
INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL FIRST RELEASE Mon. Jan. 10.

LIBRARY [illegible]

SHORT COURSE: Animal Health and Sanitation.

LECTURE No. 7: Animal Parasites.

ANNOUNCEMENT: The first radio lesson in the U. S. Livestock School, continues our discussion of a week ago at this period on the subject of Animal Health & Sanitation. The school master is scheduled for a talk on animal parasites, just a minute, please -

(NOTE: The characters speaking during this lecture are:
The Professor himself, Woodford, Grimes, and Jobson, members of the class.)

WOODFORD: Where's the Professor, Grimes?

GRIMES: He hasn't showed up yet. ---- Why?

WOODFORD: Ah, I just wanted to show him this clipping. Guess I'll leave it here on his desk.

GRIMES: What's in it?

WOODFORD: You've heard of the man who could make two blades of grass grow where one grew before ---?

GRIMES: Uh-huh-h -------

WOODFORD: Well, -- This is the story of a bunch who are running him a close second. They raise as many pigs from two sows as they used to do from three.

GRIMES: How do they do it? -- No matter how many I raise, my pigs don't seem to grow right. They are not thriving at all.

THE PROFESSOR: Hello, Woodford! - What's that I heard you say, Grimes? What's the matter with your pigs?

GRIMES: I didn't see you coming, Professor --- I was just telling Woodford -- my pigs are not growing as they should.

THE PROFESSOR: Well, the reason for unthrifty young animals sometimes goes pretty far back, It may be bad breeding.

F.S.

GRIMES: It's not that. My pigs are as well bred as any pig that ever stuck its nose in a trough.

THE PROFESSOR: Maybe you are not feeding them right.

GRIMES: I'm providing what the experts say they need. I let the pigs do their own choosing at the self-feeders.

THE PROFESSOR: As a general thing, unthrifty young animals are the result of bad breeding, bad feeding, or parasitism. If you know the breeding and feeding are all right, look for parasites as the probable cause of the trouble.

GRIMES: The pigs don't seem sick -- they just are not growing right.

THE PROFESSOR: That's often the case. Parasitism is not spectacular as are the feverish conditions caused by disease-producing bacteria in general. The animal parasites cause the infested animals to become unthrifty and to show a little digestive disturbance without the presence of fever, as a rule. The bad effects usually come on very insidiously. The condition of the infested animal sometimes falls off very slowly and seldom very fast.

Of course, the harm the parasites do depends on their numbers, the organs and tissues they enter, their habits, and the strength of the animal which they infest.

WOODFORD: Parasites kill animals some time, don't they?

THE PROFESSOR: Yes, especially young animals. Young animals are peculiarly susceptible to parasites and the bad effects of parasitism. Gapeworms, you know, kill young chicks. Ascarids kill little pigs. Hookworms kill puppies, Stomach worms kill lambs. And numerous other worms do much to cause high infant mortality so prevalent among young livestock.

JOBSON: Professor, what do you mean, by "parasites"? Is it worms you are talking about?

THE PROFESSOR: I have reference not only to worms, but to numerous other live organisms which live IN and ON animals and feed at their expense. You were in the war, weren't you, Jobson?

JOBSON: Yes, sir.

THE PROFESSOR: Then you probably know something about parasites. Under that term we include such forms as "cooties" or lice, ticks, fleas, mosquitoes, and others which remain on the outside of the animal and feed upon it. We also include such forms as tapeworms of man, dogs, sheep and other animals, the liver flukes of sheep, and the larval insects such as bots in the stomach of horses; ox warbles under the hides of cattle, and grubs in the heads of sheep.

GRIMES: How would you treat those pigs of mine for parasites?

F.S.

THE PROFESSOR: I'd advise you first to 'Call the Doctor.' Treatment in such cases is best left to a competent veterinarian. The really effective drugs for the removal of worms, for instance, are potent poisons. The niceties of diagnosis and the selection of doses calls for such training as the veterinarian has and the stockman and farmer do not have. If you want to kill the worms without killing the animals, you'd better rely on the expert.

GRIMES: Isn't there any remedy the farmer can apply.

THE PROFESSOR: Yes -- but, look here, it's almost time to dismiss class and we haven't even started. Get to your seats, boys! (Raps as if for order) (As if to Class) Members of the class will be in order!

We've been having a little discussion about animal parasites. I've been asked for a remedy which you all can apply.

The remedy which I would advise comes as near to a panacea, or universal remedy for disease, as anything I know. It is sanitation.

The proper way for farmers and stockmen to treat parasitic diseases is to prevent their occurrence and spread, by means of sanitation.

You should bear in mind a few important principles ----- take these down in your note books -- that will help you remember them.

Parasites usually spread and increase by means of eggs and grubs in the manure. You should regard manure as potentially dangerous and dispose of it accordingly. It is most dangerous for animals of the same or closely related species. Sheep manure and sheep parasites are dangerous for sheep and cattle but not for horses and swine. Young animals should be given special care and attention. They should be kept away from areas occupied by older animals, which are practically certain to be infected from manure. Overstocking is dangerous. Provide plenty of pasture or range.

Someone has placed a clipping here on my desk -- it gives a striking example of the value of special protection of young animals. I'll not read it -- but it gives the results of the swine-sanitation system devised by the Bureau of Animal Industry and developed by it in Illinois. Little pigs, under this system, are farrowed in clean houses by sows which have been scrubbed to remove dirt and parasite eggs. The sows and pigs are then hauled to a clean, forage pasture and left there. They are kept away from the older animals and contaminated areas until they are 4 months old and have some degree of immunity.

This not only enables the farmer to raise as many pigs from two sows as he had been raising previously from three, but the pigs make a rapid growth to uniform herds in which there are no runts. They are thrifty and profitable. In this case and other cases, it pays to take special care of the young.

We'll suspend here -- Next week we will conclude this course in livestock health and sanitation by discussion of dips and disinfectants.

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UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL Second RELEASE Mon. Jan. 10.

SHORT COURSE: Livestock Barns and Shelters.

LECTURE No. 7: Sheep Sheds and Shelters

ANNOUNCEMENT: Sheep sheds and Shelters," that's the next topic for discussion in the U. S. Radio Farm School. There is just one more talk on this general subject and then the U. S. Department of Agriculture will send out the next installment of booklets, containing the 24 printed radio lesson given during the past 8 weeks. There is no charge whatever. A post card request will bring you the 24 booklets in which are printed the 216 radio lessons given in the U. S. Radio Farm School.

* * * * * * * *

(NOTE: The characters speaking during this lecture are:
The Professor himself; and Henderson, Moore, and Coates.)

* * * * * * * *

THE PROFESSOR: (Aside - as if in conversation) That's a fine looking overcoat you've got there, Moore.

MOORE: It's a warm one, too. Just feel that cloth. It's all wool.

THE PROFESSOR: Keep it on. Sit down over there by the stove for a few minutes.

MOORE: What's the idea, Professor? -- Want me to roast?

THE PROFESSOR: Well -- You know, we're going to talk about sheep shelters today. That coat ought to help you understand why sheep don't need extra warm sheds in winter - but do need shelters that are cool in summer. Even after shearing, sheep are not the coolest clad animals. ------ But get to your seat.

(Four or five raps -- as if on desk)

The class will be in order!

As you all know, the sheep is essentially an outdoor animal.

In many parts of the world, flocks remain in the open the year round.

In this country, however, and especially in the regions north of Tennessee and east of Colorado, cold winters, drenching storms, and intense heat make some sort of shelter necessary.

Of course, the structures need not be elaborate or expensive. The main thing in winter is dry shelter in the time of storm. Sheep do not need much warmth. A building with a tight roof, walls with a single thickness of boarding and plenty of doors and windows is generally enough.

In summer, particularly, sheep need shade and protection from heat. You should build your shelters so that they will be cool in summer --------- (As if interrupted) What is it, Henderson?

HENDERSON: How about the lambs -- they need more protection in cold weather, don't they?

THE PROFESSOR: Well, you can provide temporary covering over lambing pens as additional protection in cold weather or you can partition off a small space for the ewes until the lambs are strong enough to go without the extra protection ---

HENDERSON: What size space would you allow for each ewe?

THE PROFESSOR: Twelve square feet of floor space. You can use movable feeding racks for the pen partitions --- that will enable you to vary the sizes of the pens according to the needs. You should allow 15 inches of space at the rack for each ewe.

During the lambing season, you can use detachable panels to form lambing pens. You who have large sheep barns, should provide a shepherd's room. Equip it with a stove and medicine closet. Then you can use it as a hospital for chilled or otherwise afflicted lambs. ------

But let's back up a bit. Coates, we haven't said anything yet about the location of the sheep shelter. How would you go about choosing a location? What would you consider first?

COATES: Well, I'd locate the sheds where it would be easy to get into the yards from the pastures.

THE PROFESSOR: Yes. You should keep that in view. Anything else?

COATES: I'd locate them where they would be convenient from the house.

THE PROFESSOR: Certainly. At certain periods the flock needs attention often during the day. You should locate them so as to save time. But how about the site itself?

COATES: It should be well drained and should give plenty of dry yard space. At home, ours is sheltered by the main barns and sheds.

THE PROFESSOR: That's good. A southern slope with sandy soil is also a very desirable feature.

You know, dryness and freedom from drafts in sheep shelters are very important. Plenty of evenly distributed sunlight is also essential to the health of your flock. Sheds should have plenty of windows and direct sunlight should

be provided for in the lambing pens ---------
(As if interrupted) Well, Moore?

MOORE: What would you call 'plenty of windows'?

THE PROFESSOR: There should be at least one square foot of window to each 20 square feet of floor. -------

Sheep also need plenty of good water and fresh air. You should provide them water pure enough for your own use -- so they can satisfy their thirst at any time.

Close confinement in poorly ventilated pens is injurious to breeding ewes. It is well to have all of one or two sides of the shelter fitted with continuous doors. The lower half of each door should be hinged at the side and the upper half at the top.

You can adjust the upper half according to weather conditions. At lambing time and during storms, however, the doors should be closed. That means, that you will have to provide for ventilation at such times. And the ventilation must be without drafts.

You can let in the fresh air through windows on the side opposite to that against which the wind is blowing. In large shelters, you will need one or two partitions from the floor to the ceiling. They will prevent drafts lengthwise of the building.

In cold sections, or where the lambs arrive in the winter months, you should provide outlets for foul air --- usually in the form of wide vents with dampers, extending through the roof, with special inlets for fresh air near the floor line. Both inlets and outlets would need to be adjustable to variations in wind and temperature. ---- (As if interrupted) What's your question, Moore?

MOORE: I just wanted to ask where I could get hold of plans for a shed fixed that way?

THE PROFESSOR: Well, the U. S. Department of Agriculture has such plans --- They have plans for all kinds of barns -- but that's something we will talk about next week. We will have to wait and go into an explanation of their service at that time.

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
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PROGRAM U. S. RADIO FARM SCHOOL FIRST RELEASE Wed. Jan. 12.

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JAN 1
U. S. Department of Agriculture

SHORT COURSE: Management of Poultry Breeding Stock

LECTURE No. 7: Getting Good Fertility.

ANNOUNCEMENT: The first poultry lesson on the U. S. Farm School is a discussion of Breeding Stock. The radio school master will tell you how to insure good fertility of hatching eggs. If you miss any of his pointers remember that a complete set of the 216 radio lessons can be obtained from the U. S. Department of Agriculture by writing this station, and requesting to be enrolled in the Farm School.

(NOTE: The characters speaking during this lecture are:
The Professor himself, and Wilder, Brooks, and Roberts, members of the class.)

(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order! ---------

As you all know, there are eggs and eggs.

I can remember the time Pa stole the darning egg out of Ma's sewing basket. He put it in a nest -- to encourage one of our hens to set up in business for herself.

At that time, I never doubted the trick would have the proper psychological effect. But it made me lose my respect for a hen's intelligence -- being fooled by a china egg.

But a lot of us poultrymen are fooling ourselves on eggs. We wouldn't think of putting china eggs under a hen and expect her to hatch chicks from them. But in the United States, this year, probably three hundred million of the two billion eggs which will be set will be infertile. That is, for all practical purposes, 15 per cent of the eggs to be incubated this spring might as well be china eggs.

Maybe we couldn't get 100 per cent fertility, but as high as 90 per cent should be possible if all conditions are as they should be.

In our previous lectures, we have touched on a number of things which will help you to get better fertility in your hatching eggs --- and consequently a larger brood of chicks -------Wilder!

F.S.

WILDER: Here!

THE PROFESSOR: Wilder, tell us what are the essentials for getting good fertility in eggs?

WILDER: You ought to have vigorous breeding stock.

THE PROFESSOR: That's certainly the first essential. Breeding stock of low vitality usually produces eggs low in fertility and low in hatching quality. --------What else?

WILDER: You should keep the hen house clean.

THE PROFESSOR: Yes, and it should be properly disinfected. Three per cent compound cresol is an efficient disinfectant-----All right.

WILDER: Dirty and damp straw will reduce the fertility of hatching eggs.

THE PROFESSOR: Yes, you should always keep the litter clean and dry. -----Go ahead.

WILDER: Sunshine helps fertility.

THE PROFESSOR: It most certainly does. Don't forget the sunshine.

WILDER: You should avoid overcrowding the hen houses.

THE PROFESSOR: That's so, too. Overcrowding will lower fertility considerably. You should allow breeding stock more floor space than laying stock. (As if interrupted) Well, Brooks?

BROOKS: How much space should you allow?

THE PROFESSOR: At least, five square feet of floor space for each chicken. All right, Wilder, what else is essential for getting good fertility?

WILDER: I don't think of anything else---Professor.

THE PROFESSOR: You were at class last time, were you not? How about feeding? Breeders must be fed well. You should give them a variety of grains with the scratch ration fed in the litter. That's so the chickens will get plenty of exercise. But don't overfeed them or they may get too fat. That will lower fertility. Proper feeding is very important.

You should see to it that the breeding flock has plenty of range. When the ground is covered with snow, try to keep a space in front of the breeding house cleared off- so the breeders can get outside on bright days.--------

Well, Brooks, suppose you tell us what else we can do to increase the fertility of eggs for hatching.

BROOKS: Keep the breeding stock free from lice.

F.S.

THE PROFESSOR: How can you do that?

BROOKS: Dust the chickens with a few pinches of sodium fluoride over different parts of their bodies.

THE PROFESSOR: I see you haven't forgotton your experience of a few weeks ago -- All right, what else can we do?

BROOKS: Keep the breeding houses well ventilated -- but free from drafts.

THE PROFESSOR: Yes. And they should have comfortable roosts to keep their combs from freezing. That's especially important in the case of roosters. -- Go ahead.

BROOKS: Well, the matings should be the proper size.

THE PROFESSOR: Just what do you mean by that? What size should they be?

BROOKS: You should put about 15 Leghorn hens with one rooster.

With breeds like Plymouth Rocks, Rhode Island Reds, and Wyandottes, you should put 12 hens with one rooster.

And with Asiatic breeds like Brahmas, you should put about 10 hens with one rooster.

THE PROFESSOR: Yes, and when you let all the hens and roosters run together, be sure not to have too many roosters. They frequently interfere with each other and cause low fertility in the eggs.

It is well to have breeding flocks mated up at least one month before starting to save eggs for hatching. You can get fertile eggs the second day after the mating pens are made up. But fertility will not be at a maximum until from 2 to 3 weeks later.

The fertility of the eggs should remain fairly high until ten days after the roosters are removed from the breeding pens.

Now, next week, we will discuss how to get good hatchability. But before we close, are there any other things you can think of which will contribute to fertility ----- Well, Roberts?

ROBERTS: There hasn't anything been said about gathering the eggs. If you don't gather them often, they may get chilled.

THE PROFESSOR: Yes, that's true. They may become so chilled in severe weather that even if they are fertile, they will not even start to develop when they are incubated.

F.S.

Well, then, you can put these points in your note books: If you want to get the highest fertility in the hatching eggs you are going to set this spring; Use only vigorous breeding stock, Keep the house sanitary; Keep the litter clean and dry, Do not overcrowd, Give as much range as possible, Feed the breeders properly, Give them as much direct sunlight as possible, Use the proper proportion of males. And collect hatching eggs frequently.

# # #

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PROGRAM U. S. RADIO FARM SCHOOL
RELEASE Wed. Jan. 12.

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SHORT COURSE: Lice and Mites.

LECTURE No. 7: Other Pests.

ANNOUNCEMENT: During the last two meetings of the U. S. Poultry School we have talked about parasites that rob the poultrymen of profits. Now we're going to discuss some of the "Other Pests."

(NOTE: The characters speaking during this lecture are:
The Professor himself; and Cole, Marshall, and Brooks,
members of the class.)

MARSHALL: (As if to dog) Lie down there, Gyp.

THE PROFESSOR: That's a fine-looking dog you've got there, Marshall.

MARSHALL: Yes, sir ---------But you don't mind my bringing him to class with me, do you? (Low growl as from dog may be introduced here.)

THE PROFESSOR: Not at all. He'll stay quiet, when class starts won't he?

MARSHALL: Sure. (More growling from dog)

THE PROFESSOR: He must scent trouble.

MARSHALL: (Excitedly) Hey! -- Gyp! ---- Come here! --------Stop him, Cole!

COLE: Stop nothing --- he went through that door like a shot! ---- Look out the window, there! (Sound as of barking dog outside)

THE PROFESSOR: He's making for the henhouse across the lot -----

BROOKS: Probably somebody stealing chickens ----

THE PROFESSOR: (Tensely) Cole! ---- There's a gun in my office there ---- Get it! ---- Shut off the lights, Brooks! ---- Some of you other fellows slip out the other door! ---- We'll catch 'em red handed ---- What's the matter, Cole, are you scared?

COLE: No, sir ---- But it might be Little Rosebud.

THE PROFESSOR: What do you mean -- 'Rosebud'?

COLE: It might be a skunk -- you know they're great on killing chickens. They get 'em any age

THE PROFESSOR: Yes -- but we can't stand by while he does it -- But it's more likely a two-legged skunk -- Can you see anybody moving around the henhouse, Brooks. Keep a sharp lookout -- There goes Marshall -- When those fellows have had time to get around to the other side, we'll slip out and close in from this side.

BROOKS: Did you see where that bunch of chicken thieves stole a truckload of poultry the other night?

COLE: They certainly are getting pretty bold with that stuff.

[illegible]

BROOKS: Yes, they say they often clean out an entire poultry flock -- Then they sell the chickens in the city markets in other sections.

THE PROFESSOR: They may hit here tonight -- then tomorrow night, they may clean the roosts in a henhouse miles from here. That's what makes it so hard to catch 'em, in the act of stealing. They jump about like fleas. ---- You know how to handle that gun, don't you Cole?

COLE: I'll say I do. I had to keep my gun handy last summer on account of the hawks and crows. You know they do considerable damage where I come from. They go after the smaller chickens. They killed a bunch of my late-hatched chickens.

But I got even with 'em. I declared war on the whole tribe. I not only put up scarecrows, I shot a lot of 'em and I destroyed all their nests I could find anywhere around my place.

THE PROFESSOR: You certainly did right, too. Where hawks and crows are giving considerable trouble that way, and you have no one to watch the chicks throughout the day, it is a good idea to confine the chicks to a very limited range near the house. You shouldn't let them range far before they are 10 to 12 weeks old.

Of course, chicks do best on free range. They should not be confined any more than is absolutely necessary -------

But, come on, boys, it's time we were closing in on those other two-legged chicken thieves ------

BROOKS: What you going to do, Professor, in case you catch 'em?

THE PROFESSOR: I'm going to do everything I can to see that they get a good stiff sentence. This kind of thing has got to be broken up. The poultry associations are making organized efforts to stop chicken thieves -- Come on.

BROOKS: Just a second, Professor. Look there! ----Talk about boldness --- there's Marshall and the other fellows --- They're walking right up to the henhouse!

THE PROFESSOR: What's the matter with 'em. That's dangerous. Come on with that gun, Cole -------

COLE: Not so fast, Professor --- Here they come back to the house. I believe they've got the thief, too.

THE PROFESSOR: Thief, nothing -- I guess it must have just been a rat. ---- Poultry houses should be built to keep out rats.

BROOKS: How would you build -- make the floors and walls out of concrete?

THE PROFESSOR: They are certainly great aids in keeping premises free from rats. But if you use wooden floors, build them from 6 to 12 inches above the ground level -----

COLE: That's no rat, they've got there.

THE PROFESSOR: ----At the first sign of rats, you should take immediate steps to destroy them. They are one of the worst of poultry pests. They not only kill young chickens, pigeons, and all kinds of poultry -- but they also cause a heavy indirect loss from the grain they eat and destroy. Constant vigilance should be your watchword if your poultry houses harbor rats.

Feed hoppers and small coops may be easily moved and the rats dug out and killed. If ordinary methods fail, use traps and rat poison such as barium carbonate. Or gas 'em by fumigating the rat holes with cyanide gas or carbon bisulphide. That will get them.

COLE: Here they are.

BROOKS: Look out! I believe it's a skunk, they've got.

COLE: Marshall, better not start any trick here. He better ----

MARSHALL: Look what Gyp and myself caught ----- What's the matter -- Where are you all going. Didn't you ever see a dead cat before ---- Don't you know that cats kill a good many chickens ------

COLE: So do dogs, for that matter.

MARSHALL: You needn't look at Gyp when you say that. You don't see any feathers in his teeth do you?

THE PROFESSOR: No, Gyp's all right. A good watch dog is valuable --- especially when poultry houses are located a considerable distance from a dwelling and are not locked. That is the kind chicken thieves favor.

Then a good ratter helps keep chicken quarters free from rats.

But Marshall, you and Gyp, have about broken up the class this time. We'll dismiss now and take up the methods of management to control poultry pests next week.

# # #

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
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PROGRAM U. S. RADIO FARM SCHOOL First RELEASE Fri. Jan. 14.

SHORT COURSE: Feeding Dairy Cattle.

LECTURE NO. 7: Feeding Dairy Calves.

ANNOUNCEMENT: We're starting the U. S. Radio Farm School with a short talk on Feeding Dairy calves. This is the seventh of the series of lessons on "Feeding", all of which are available to you in printed form. As a matter of fact your request for enrollment in the Farm School will automatically place yo on the Department of Agriculture's mailing list for all of the 216 radio lesson which are published in 24 small booklets.

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(NOTE: The characters speaking during this lecture are;
The Professor himself; Weller and Norton, members of the class.)

* * * * * * *

(Five or six raps -- as if on desk)

THE PROFESSOR: Members of the class will please get their note-books ready.

I want you to take down a schedule for feeding your dairy calves.

Of course, feeding the dairy calf should begin before it is born.

Its mother should be healthy, well-fed, and properly taken care of. If all calves were born under such conditions, there would be a higher proportion of good cows to poor ones.

It is estimated that one out of every three calves raised to maturity turn out to be unprofitable. Select them from good sires and the best dams. Then raise them and feed them properly.

But for the present, we will start with the new-born calf.

You should always raise a dairy calf by hand. Since we have to get on such close terms. Let's give this one a name. We'll call her "Dorothy" or "Dot" for short.

For the first 48 hours of her life we'll let "Dot" get her feed direct from the maternal milk fountain of the cow. That first milk is thick and yellow. It contains substances which "Dot" needs. It contains properties that stimulate her stomach and aid her digestion.

But now after 48 hours, we are going to teach little "Dot" how to drink. ---------Weller! -----

WELLER: Yes, sir.

THE PROFESSOR: Tell the class how you would go about teaching "Dot" to drink milk from a bucket or pail.

WELLER: I'd let her get hungry, then I'd put some warm, fresh milk from the cow in a clean pail. I'd hold the pail so she couldn't tip it over. Then I'd push her nose into the milk.

THE PROFESSOR: But suppose she wouldn't drink even then?

WELLER: I'd get straddle the calf and force her nose and mouth into the milk. Or I'd try putting two fingers in her mouth. While she was sucking them I'd lower them into the milk. Then I would gradually remove the fingers and after repeating this process for a few times the calf will drink without the fingers.

THE PROFESSOR: Yes. ---- After a week or ten days, or as soon as her mother' milk is fit for human consumption, we'll start feeding "Dot" from the herd milk.

(As if interrupted) What is it, Norton?

NORTON: How much milk should the calf get?

THE PROFESSOR: I was just coming to that -- Of course, it depends on its size and age. At birth a 50 pound calf should have about 8 pounds or a gallon a day. A larger calf weighing 80 to 90 pounds, should receive about a gallon and a half. It is better to give too little at the start than too much.

And, you understand, the milk should be fed at the same temperature ---- about 90 degrees all the time.

The majority of dairy calves are started on whole milk and after the second or third week are gradually changed to skim milk. Grain is then fed to supplement the skim milk. About two weeks should be taken up for this change. If the calf is weak, or not thrifty it may take longer.

Now, we'll start feeding our calf "Dot". During the first four days after she's starting drinking from the bucket, we'll give her from 8 to 12 pounds of her mother's milk. Then for the rest of the first two weeks we'll give her whole milk from the herd.

At the third week, we'll begin substituting skim milk for the whole milk at the rate of 1 pound a day. If "Dot" is vigorous, we'll increase the total quantity 2 to 4 pounds. But we'll keep her hungry -- we won't overfeed her.

By the beginning of the fourth week, we will be giving "Dot" from one half to three-fourths of her milk as skim milk. By the end of about the fourth week, "Dot"'s milk will be skim milk entirely.

Then from the fifth week on, we'll feed her all skim milk. We'll increase the quantity gradually until we are giving her 18 to 20 pounds of skim milk a day.

We plan to wean "Dot" at six months of age. Of course, that will depend on her size, and condition. If we've got plenty of skim milk, it won't hurt to feed her skim milk until she's 8 or 10 months old.

But, of course, raising her on skim milk means we will have to feed grai too, because the fat has been removed from the skimmilk. Here are some mixtures that you might note down:

(SLOWLY) 3 parts cracked corn, 1 part wheat bran. ------ or say, --- 3 parts cracked corn, 1 part wheat bran, and 1 part ground oats. ------- Another good one is, -- 3 parts cracked corn, 1 part wheat bran, 1 part ground oats, and 1 part linseed oil meal. ---- And still another excellent mixture is, 5 parts cracked corn, 1 part wheat bran, 1 part ground oats and 1 part blood meal.

We'll start giving "Dot" grain during the second week. When she's a month old she should be eating about 1 pound a day. When she's three or four months old, 3 pounds a day should be enough. Of course, you understand, we never mix the milk and grain together. We feed them separately. And we keep the feed boxes clean. --- (As if interrupted) Well?

NORTON: Suppose you haven't got the skim milk -- and it costs too much?

THE PROFESSOR: Well, you can raise calves on calf meals or gruels. They will not be as vigorous as whole or skim milk fed calves. But, if properly handled they should develop their proper size. Here's a calf meal that's been used with success by the U. S. Department of Agriculture. You might take it down. ----(Slowly) Take 50 parts finely ground corn; 15 parts linseed oil meal; 15 parts finely ground rolled oats; 10 parts of dried blood flour; 10 of skim-milk powder; 1/2 part salt. Make a gruel by mixing with warm water at the rate of one pound of meal to 9 pounds of water. Gradually replace the whole milk the calf is getting with this gruel. Feed at the rate of about 2 pounds a day for a few days. When the calf is about 50 days old it should be getting only the gruel. -------------

The same amount of grain and roughage should be fed with calf meals as with skim milk. During the second week vigorous calves will start to eat roughage. We are going to give "Dot" good quality clover or alfalfa hay. A small quantity at first so as not to cause scours. After she is well started we'll let her have all the good hay she'll clean up.

I wouldn't turn calves in pasture except for exercise until they are two or three months old and then, if the pasture is good no other roughage is necessary until they are over 6 months old.

You can feed calves small quantities of silage after they are a month old -- but you should start them on silage gradually. ---

Next week, we are going to map out the plans for feeding "Dot" after she's been weaned.

UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL Second RELEASE Fri. Jan. 14.

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SHORT COURSE: Dairy Herd Mangement.

LECTURE NO. 7: Stable and Yard Arrangement.

ANNOUNCEMENT: We now take up the next dairy short course on "Herd Management", and our schoolmaster, who is the spokesman for the U. S. Department of Agriculture will talk about Stable and Yard Arrangements. If you are not yet on the mailing list for the 24 booklets in which are printed the 216 radio lessons given in the U. S. Farm Radio School, we urge you to make your request to this station without delay.

* * * * * * * *

(NOTE: The characters speaking during this lecture are:
The Professor himself; and Spencer, Brown, and Allen,
members of the class.)

* * * * * * * *

SPENCER: Hey, Brown! -----What's the Professor going to talk about?

BROWN: Arrangement of the cow barn, I believe.

SPENCER: I've got a good notion to cut class. I know just about what he'll say.

BROWN: How's that?

SPENCER: It's the same old line. Chances are he'll say that if the herd is big enough, you can save time and labor by having two rows of stalls instead of having them in one long row.

BROWN: Sure, he'll say that ---- But, Spencer, if you can tell in advance what he'll say --- how about the way the cows should face? --- Will he say the two rows should face inside? -- or toward the outside?

SPENCER: That's easy. The cows should face in.

BROWN: How do you get that?

SPENCER: Well, when their heads are toward the central alley, you can just push the feed cart up the alley and feed both rows of cows at one trip. Then, too, sunlight coming in the windows along the outside wall will strike the gutter. That'll help keep down bad odors.

BROWN: Yes, but if the cows face out, you can get the manure out easier. You can take both gutters at one trip. You can make it wide enough for a carrier or a spreader. Then with the cows heads toward the outer walls, the sunlight from the windows strikes the mangers. That keeps them from getting musty --- you see if he don't say the two rows of cows should face out.

SPENCER: Well, here he comes --- We'll soon find out.

BROWN: Let's get to our seats.

(Four or five raps --- as if on desk)

THE PROFESSOR: The class will be in order -----

You all, no doubt, remember the story of the old Greek hero, Hercules.

You recall, he was given twelve seemingly impossible tasks to perform. One of those tasks was a big job in sanitary engineering.

According to the story, King Augeas had kept 3000 oxen in a barn for 30 years without once having it cleaned. By that time, nobody short of Hercules was equal to the task. He promptly overcame difficulties, by turning two rivers from their courses and letting them sweep out the barn.

The framers of that story deserve credit for recognizing the importance of sanitary problems. But the method was primitive.

The time for sanitary engineering is not after the dirt has accumulated --- but when the barn is built.

If King Augeas had constructed his barn for cleanliness and comfort, troubles among his cattle would not have forced him to seek a super-strong man to remedy matters.

So, too, if you arrange your dairy barn properly, it will not be a herculean task to keep it properly.

Let's start with the floors. Wood, concrete, or cork brick may well be used. A wooden floor is warmer than one made of concrete. But it will not last as long and **it is not as sanitary.** Concrete floors are easy to clean and are very durable, but they get cold in winter. This may cause the cows udder trouble or rheumatism. But plenty of bedding will overcome this. Cork brick are also sanitary, durable, and easily cleaned, but the first cost is high.

The stable floor should be kept as clean as possible. But, remember, concrete won't dry as fast in cold as in warm weather. It is unhealthful for cattle to lie on wet floors.

The size and arrangement of thegutter largely governs the ease with which the cows are kept clean. The gutter should be at least 8 inches deep on the platform or stall side and 6 or 7 inches on the opposite side. -- The alley back of the gutter being that much lower than the stall floor.

The gutter should be at least 16 inches wide. It should slope to drains, and the drains should be provided with perforated covers to prevent bedding and other material clogging the sewer.

All manure should be removed from the stable at least once a day. The most common way of removing manure from the barn in medium-sized dairies is by the litter carrier suspended from an overhead track. The carrier may be dumped directly into a manure spreader or wagon standing outside the barn or may go to the manure pit. --------(As if interrupted) Well, Allen?

ALLEN: What makes the best bedding -- straw or shavings?

THE PROFESSOR: Good bedding should be bulky. It should have high water-holding capacity. And it should contain fertility. Corn stover and the straws are more bulky than shavings or sawdust and also have higher fertilizing value. In trial by the Bureau of Dairy Industry 100 pounds of straw was found equal to 150 pounds of shavings. But shavings are cleaner and more nearly free from dust than other bedding material. They are frequently used in dairies where very clean milk is produced. -------

Now let's take up the question of feeding. The most practical method for feeding grain is to place enough in a truck or cart and weigh or measure the amount for each cow as the cart is pushed through the feeding alley. Silage may be fed from the same cart or a similar one.
A small blackboard or feeding card showing the quantity of feed each cow is to get may be attached to the cart. A spring balance scales suspended on an arm above the feed truck will be helpful.

ALLEN: What kind of mangers would you advise, Professor?

THE PROFESSOR: Concrete. It is easy to keep clean and will last indefinitely if properly built. If you build it without high fronts, you can clean it more readily. On the other hand, if the manger does not have high fronts, the cows may push the feed out of the manger into the alley and slip and bruise their knees when reaching for it. --- (As if interrupted) One at a time, please --- Brown, I believe you had your hand up first.

BROWN: Should the stalls be built so the cows will face in or toward the outside?

THE PROFESSOR: Well, Spencer, What was your question?

SPENCER: I wanted to ask that same thing.

THE PROFESSOR: Well --- My answer may sound two-faced. But just suit yourselves. Either arrangement has its advantages.

If there are no other questions, we'll close here.

Remember, next week we will discuss management of the bull.

UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

PROGRAM U. S. Radio Farm School

RELEASE First Mon., Jan. 17

SHORT COURSE: Animal Health and Sanitation.

LECTURE No. 8: Dips and Disinfectants.

ANNOUNCEMENT: We start the U. S. Radio Farm School at this time with a short discussion on the subject of "Dips and Disinfectants." This is the regular Monday livestock period. Our radio schoolmaster, the spokesman for the U. S. Department of Agriculture, will talk to the class. Remember, please, that all the 216 lessons are supplied in printed form upon your request for enrollment in the Farm School.

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(NOTE: The characters speaking during this lecture are: The Professor himself; and Woodford, Grimes, and Coates, members of the class.)

****

(Four or five raps -- as if on desk)

THE PROFESSOR: Attention, class! ------

This is the last lesson in our short course on animal health and sanitation.

Next week at this period, we will begin a short course on the production and use of meat.

During this series now drawing to a close, I hope we have, at least, refreshed your memories. I hope we have recalled to you that in the fight against the invisible enemies of animal health - 'eternal vigilance is the price of safety.' ---------

By the way, Woodford, what would you say is the first essential for health?

WOODFORD: Cleanliness is, isn't it, Professor?

THE PROFESSOR: It certainly is. You are all familiar with the scouring and scalding, the scrubbing and the boiling with which the women folks on the farm have fought to keep things "sweet and clean." It's a fine idea to follow their example into the hog pen and the cow stable.

Keep things clean. Scrape or wash off all manure and dirt; using sal soda solution on bare wood, the hotter the better. Carry everything moveable out for a good sunning. Burn all trash. Finish by painting or whitewashing wherever possible------Grimes!

GRIMES: Yes, sir.

THE PROFESSOR: What else besides cleanliness would you say is essential to prevent disease?

GRIMES: Plenty of sunshine.

THE PROFESSOR: Yes. Now, Coates ---- what would you say?

COATES: Fresh air is essential.

THE PROFESSOR: Yes. Now, we have mentioned ordinary cleanliness, sunshine, and fresh air. They are extremely important. Unfortunately, however, these things can not always prevent disease. They do not always kill the disease-carrying organisms.

Just as plants and orchards may need spraying to keep them healthy, so animals and their habitations may require dipping or disinfection to free them from certain harmful pests and disease germs. Sometimes these pests are found on the bodies of the animals themselves. Sometimes, they are scattered about the ground. Or they may be in or on the buildings from which they are transferred to the animals.

Before undertaking dipping or disinfection, however, you should know just what disease you have to deal with. A product which is deadly to one kind of insect or germ may have little effect on another. ---------
(As if interrupted) What is it, Woodford?

WOODFORD: Where could we find out about what kinds are best for the different kinds of pests?

THE PROFESSOR: Well, the U.S. Department of Agriculture distributes free bulletins on the proper methods of dipping cattle, sheep, and swine against ticks, scab or mange, and lice. The bulletins have pictures of the insects themselves. They point out the symptoms and the effects they produce in the animal. They will help you determine the cause of the trouble as well as to find the remedy.

WOODFORD: Do they tell you how to prepare the disinfectants?

THE PROFESSOR: Well, the department will be glad to give you any information along that line you want. But it will seldom pay in the long run to manufacture them on the farm. You can buy them ready prepared.

F.S. (Livestock) 1/17/27

The Department of Agriculture, you know, is charged by Congress with responsibility for preventing the spread of animal diseases by interstate traffic. That means looking after the dipping and disinfecting in a good many cases.

If a car of scabby sheep should be shipped from one State into another and turned loose as feeders, they might give rise to serious outbreads of scab over wide areas. In order to prevent such a calamity, the Department does not allow such shipments until the sheep have been dipped and the car disinfected.

Similarly, large areas in certain of the Southern States are quarantined to prevent the spread of the cattle tick which carries the splenetic or Texas fever of cattle. Cattle owners are required to dip their cattle at regular periods to destroy the ticks. Large vats are built and filled with an arsenical solution which destroys the ticks when the cattle are driven through the dip.

No cattle - except for immediate slaughter - can be shipped out of the quarantined area until they have been thoroughly treated to kill the ticks. In this way, the further spread of this cattle disease is being prevented and the area under quarantine is gradually being reduced, as tick-infested regions are being cleared up.

Through cooperation with State and local authorities, and cattle owners the Department may in a few years completely eradicate this disease from among American herds. Similarly, scabies of sheep and cattle, and tuberculosis of cattle are expected eventually to be wiped out.

Any of you who wish to learn what particular dip or disinfectant to use in any of the numerous diseases which call for some such treatment should consult the bulletins issued by the U.S.Department of Agriculture.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL   RELEASE SECOND   Mon. Jan. 17.

SHORT COURSE: Livestock Barns and Shelters.

LECTURE No. 8: Building Plan Service of the U. S. Department of Agricultur

ANNOUNCEMENT: "Building Plan Service of the U. S. Department of Agriculture". That's the subject of our second lesson in the U. S. Livestock Radio School. While the class is getting settled, I want to remind you again that the U. S. Department of Agriculture is sending a complete file of these 216 radio lessons to all regularly enrolled students. There is no charge and each of you should avail yourself of this splendid reference library. Go ahead, Professor.

(The characters speaking during this lecture are:
The professor himself; and Henderson, Moore, and
Coates, members of the class.)

****

(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be in order!

For several weeks now, we've been discussing some of the general principles and main features in the building of livestock barns and shelters.

But, of course, it's hard to translate general principles into practice with a hammer and saw, without something more definite and concrete to guide you.

Each of you may have a different farm building problem. Obviously, it would be impossible, in the few minutes remaining, to give detailed plans for the many types of farm structure.

If you are considering the building of a barn or shed, you want to have some idea as to how much material you will need, how it should be cut, and how fitted together to meet your needs.

Now, I'm not going to pass around any blueprints. But I'm going to do the next best thing to it. I'm going to tell you where you can get such plans for the asking. Plans which you may be able to readily adapt to your own immediate requirements -- or, if they do not exactly fit your individual needs, may, at least, serve as suggestions to guide you in working out your own problem.

I refer to the building plan service of the U.S.Department of Agriculture.

Through the division of agricultural engineering of its Bureau of Public Roads, the department has a large number of blueprints for farm buildings and equipment. -- (As if interrupted) Well?

HENDERSON: Are those practical working drawings?

THE PROFESSOR: They are. (As if interrupted) All right, what is it, Moore?

MOORE: What kind of buildings do they have plans for?

THE PROFESSOR: Many different kinds. They have blueprints for farm houses and garages; for general barns; for dairy barns; for horse barns; for cattle barns; for sheep sheds and hog houses; for corn cribs and granaries; milk houses and implement sheds; root storage houses and masonry and wood silos; and numberous other types of construction.

COATES: How could we get hold of those plans, Professor?

THE PROFESSOR: Well, you wouldn't want them all. If you write to them, they will send you a list of the different designs they have on hand. Then, you can pick out the plan that most nearly meets your requirement and ask for that. It will be sent you free of charge. (As if interrupted) All right?

HENDERSON: Do they have plans for use in different sections of the country.

THE PROFESSOR: Yes. In a good many cases they do. For instance, the department has different plans for central hog houses suited to southern conditions and for those designed for use under northern conditions. The northern houses, for one thing, are built lower to provide greater warmth in winter. But of course, they are intended to meet average conditions prevailing on farms in the different sections.

They do not cover all the requirements incident to variations in climatic conditions, differences in practice and individual preference. But they are valuable by way of suggestion even when they are not entirely applicable. (As if interrupted) What's your question, Moore?

MOORE: I just want to know if they have plans for all size silos?

THE PROFESSOR: Not all sizes, but a great many sizes. For instance, they can furnish you with a typical design for monolothic concrete silo. With that design they will furnish estimates of the amount of material needed to make such a silo in any of six different diameters each at from six to eight different heights.

COATES: Do they have plans of equipment, too?

THE PROFESSOR: Yes, they have a good many -- but you can find out from their lists. They also have mimeographed notes or bulletins on various subjects relating to building such as the use of concrete -- water supply -- sewage

disposal -- plumbing -- plastering -- stone masonry -- painting -- and stucco. And, of course, you are all familiar with the regular bulletins issued by the department. In the case of some of the smaller structures, such as hog houses, you can get rather complete plans which may meet your requirements from the bulletins on such structures.

HENDERSON: Do they give estimates of the cost with the plans.

THE PROFESSOR: I'm suprised at your asking that, Henderson. You know that such things change too fast and differ too widely in different localities to make that practical. As I said, they are designed for use on the average farm in certain regions. They are made as inexpensive as is consistent with sound economy -- but the department engineers will not make you any cost estimates.

HENDERSON: Well, where do they get these plans anyway?

THE PROFESSOR: The plans are drawn by the department's own corps of agricultural engineering experts. They are based on the best information afforded by engineers and specialists in the Department and elsewhere.

For instance, specialists of the Bureau of Plant Industry, may after years of study, discover the conditions which are most favorable for keeping a certain crop in storage.

The problem is then put up to the division of agricultural engineering of the Bureau of Public Roads. They are asked to design a storage house to meet these conditions. Often such a request involves an expert field study of the handling of that particular crop. With this information, plans are drawn and blueprints are then made available to others who may wish to build similar structures.

Now -- if there are no further questions -- I'd like to say that at this period next week we'll start a course on hides, wool, and mohair. Farmers, generally, are cutting down their own profits on hides for leather. We are going to point out a few of the things we can do to save our own hides.

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UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL FIRST RELEASE Wed. Jan. 19/27.

SHORT COURSE: Management of Poultry Breeding Stock.

LECTURE NO. 8: Getting Good Hatchability.

ANNOUNCEMENT: We start the U. S. Radio Farm School at this time with a short discussion on the subject, "Getting Good Hatchability." This is the regular Wednesday poultry period. Our radio schoolmaster, the spokesman for the U. S. Department of Agriculture, will talk to the class. Remember, please, that all the 216 lessons are supplied in printed form upon your request for enrollment in the Farm School.

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(The characters speaking during this lecture are:
The Professor himself and Wilder, Brooks, and
Roberts, members of the class.)

(Three or four raps -- as if on desk)

THE PROFESSOR: The class will be in order!

According to the adage, you should "Never count your chickens before they are hatched."

That age-old advice was given as a sort of disappointment shock absorber.

It originated at a time when the number of chickens that may hatch from a given number of eggs was regarded as largely a matter of chance.

When you consider that in this country probably not over sixty per cent of the eggs set each season ever hatch, you may feel that there was some justification for that attitude. Many of the millions of eggs set are infertile. But hundreds of thousands of the eggs which are fertile fail to hatch.

But much of this waste can be prevented. By proper management you can reduce the chances of failure. You can make it easier not only to help get a larger hatch, but to get a better-quality hatch.

The kind of chick hatched determines very largely the kind of a pullet or cockerel it will develop into ----- but you cannot hatch a good chick from a poor eg

If you set small eggs you are bound to get small chicks. One objection to using pullets as breeders is that frequently so many small eggs are set. Yearling

hens usually lay larger eggs than pullets. Consequently, when yearling hens are used as breeders the chicks are not only larger but are also stronger -- especial if the yearling hens have been given a rest before the breeding season.

Rigid culling of the hatching eggs will give you more chicks of better quality: Cull out the small eggs. Save only those that weigh as much as 2 ounce each. And, of course, cull out the eggs with cracked shells. And, if you have white-egg variety, cull out all tinted eggs.

But the problem of getting good hatchability from the eggs set goes furthe back than setting time.

Last lesson we mentioned some things which tend to produce fertile eggs. Many of the same conditions will also,you get a more complete hatch of the eggs you set ------ Wilder!

WILDER: Yes, sir.

THE PROFESSOR: What is the first thing you would say is necessary to produce goo hatchable eggs?

WILDER: Vigorous breeding stock.

THE PROFESSOR: Yes, that's the keynote to success. You should cull the breeding flock very carefully just before the commencement of the breeding season. You should cull out all unhealthy birds; those that are thin and weak, those that hav crow-like heads and narrow backs, and those that are "baggy" in the abdomen. You should pay particular attention to the males. Make sure they have bright, full eyes, broad heads and backs, good depth of bodies, and strong, well-placed legs. ---------Brooks!

What else will help get good hatchable eggs?

BROOKS: The houses should be sanitary.

THE PROFESSOR: Yes. They should be thoroughly cleaned and disinfected. And you should keep the chickens free from lice ---- How would you do that, Brooks?

BROOKS: Rubbing a few pinches of sodium fluoride well into the feathers over different parts of their bodies will keep them free from lice for a long time.

THE PROFESSOR: Yes. What other sanitary measures would you take?

BROOKS: I'd keep the litter clean and dry. I wouldn't overcrowd the houses. I'd give the chickens as much range as I could. If it was at all possible, I'd see that the breeders got outdoors.

THE PROFESSOR: What is it, Roberts? Don't you agree with that?

ROBERTS: He said he'd let the breeders outdoors if it was at all possible. Isn't cold weather likely to cut down the number of eggs they lay?

THE PROFESSOR: Yes. But it is better to sacrifice a few eggs and be surer of getting eggs that will hatch -- than to keep the hens confined all the time.------

Roberts, suppose you tell us what else we can do to improve the hatchabili of eggs.

ROBERTS: Milk has that tendency. So does green feed, doesn't it?

THE PROFESSOR: Yes, and as we explained in our lecture course on feeding the bree ing stock, the breeding mash, which you start about 6 or 8 weeks before the breeding season, should contain some mineral mixture.

ROBERTS: Cod-liver oil also helps.

THE PROFESSOR: Yes, I'd advise putting cod-liver oil either in the mash or feedin it with semi-solid buttermilk -- if you don't have skim milk. In case you put it in the mash, you should mix a fresh batch of mash and oil about every two weeks.

WILDER: How much cod-liver oil would you feed?

THE PROFESSOR: Up to about 2 per cent of the weight of the mash. --------

All right, Roberts. Go ahead. Anything else, to improve the hatchability of eggs?

ROBERTS: Eggs for hatching should be collected often during cold weather to preve them from getting chilled.

THE PROFESSOR: Yes. Furthermore, eggs that are held for setting should be kept in a room with a temperature of about 60 degrees Fahrenheit. And they should not be kept over two weeks. In fact, the fresher the eggs are when they are put in the incubator or under the hen, the better they will hatch.

With good, fresh fertile eggs, you have increased the chances for a good hatch tremendously. But poor hatches are not altogether due to poor eggs. There are two sets of conditions that may operate to cause poor hatches. The fault may not be in the eggs --- but in the incubation.

We have pointed out some of the ways you can insure more hatchable eggs. Next week we will start a short course on methods of incubation, with a talk on the value of hatching early. Other subjects to be treated during the course include the selection of eggs, hatching with hens, the incubator, the operation of the incubator, testing the eggs, hatching turkeys, ducks, and geese, and buying baby chicks.

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UNITED STATES
DEPARTMENT
OF AGRICULTURE

Radio Service

OFFICE OF
INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL SECOND RELEASE Wed. Jan. 19.

SHORT COURSE: Lice and Mites.

LECTURE No. 8: Methods of Management to Control Pests and Diseases.

ANNOUNCEMENT: The second topic for brief discussion on the Radio Farm School is "Methods of Management to Control Pests and Diseases." We are urged by the U. S. Department of Agriculture, which is responsible for this information, to ask all listeners who have not enrolled to do so without delay while the supply of printed lessons are still available. 24 booklets, including 216 radio talks are mailed free of charge from Washington to all who enroll in the U. S. Radio Farm School.

(The characters speaking during this lecture are:
The Professor himself; and James, Holton, and
Brooks, members of the class.)

*****

(Four or five raps -- as if on desk)

THE PROFESSOR: The class will be ---------

HOLTON: Professor! Just a minute, Professor!!

THE PROFESSOR: Well.

HOLTON: Before you start the class, there's something I wanted to ask you about.

THE PROFESSOR: All right. Go ahead.

HOLTON: I've been in the poultry raising business for nearly ten years now.-----

THE PROFESSOR: Yes, I know.

HOLTON: For the last year or two, I've been losing more growing chickens than I ever did before. It's cut down my profits. If it keeps getting worse, I'll have to quit the business. -----

THE PROFESSOR: There are others in the same fix, I understand. There has been a great deal of complaint about the prevalence of coccidiosis, roup, chicken pox, and worms, in particular. But the control of such diseases is largely a problem of management -- of sanitation in the poultry plant ---- What's that you said, James?

JAMES: I just said, sanitation isn't everything.

THE PROFESSOR: No. There are certain diseases that are apparently little affected by hygienic conditions or by the constitution of the chickens. Infectious bronchitis and European fowl pest take the strong and fit as well as the weak. Bacillary white diarrhea is a heritable disease transmitted from adult to chick through the egg. Sanitary measures will do a great deal to prevent the transmission of the disease among chicks. But to eradicate the disease, you must get the infected birds out of the flock.

On the other hand, controlling roup is largely a matter of having well-built houses that provide plenty of fresh air, without drafts. The control of chicken pox involves keeping vigorous stock and housing it in dry, well- ventilated houses.

In fact, one of the most important features of good poultry management consists in having well-built houses. Whether they be brooder houses or laying houses, they should be kept dry, free from drafts, and strictly clean at all times.

Strict sanitation, and especially the thorough disinfection of the roosts and roosting quarters will help to control lice and mites.

Proper feeding is another important phase of good management in order to keep the birds in the best of health. Contaminated food often causes food poisoning of what is known as botulism. Plenty of green feed at all times will help keep the chickens in better health and will help prevent the development of nutritional roup. Cod-liver oil in the ration will help prevent weak legs in growing chicks. The food given to any class of poultry should always be sweet and wholesome. Clean water is also very necessary and should be available at all times. (As if interrupted) Well?

HOLTON: My hen houses are well built. And I feed my chickens well. I keep the houses clean, too, but still the worms have about ruined me.

THE PROFESSOR: Ah, I see. Your trouble is with worms, eh? Have you been raising your chickens on the same ground year after year?

HOLTON: Y-yes-s ---- I have.

THE PROFESSOR: Well, then, it's not suprising, you're having trouble with worms. Did you ever see a chick scratching for feed.

HOLTON: Certainly!

THE PROFESSOR: It gets much of its feed direct from the soil doesn't it? It often has to scratch around in filthy and contaminated ground in search of particles of food doesn't it? Even when confined to the brooder house, it get's it's scratch grain off the floor --- Is there any wonder then that its food is likely to be covered with thousands of disease organisms.

HOLTON: But, Professor, the chickens always have fed that way. But the worms were never this bad before.

THE PROFESSOR: Naturally, they are getting worse -- when you keep using the same ground year after year. -----

I want the whole class to please remember this; healthy chickens can be raised only in clean houses on clean ground.

Soil sanitation is extremely important, as many commercial poultrymen are beginning to realize. Old hens as well as growing chicks, often become infested with internal parasites.

Good management demands a change of range for both chicks and laying hens. As a matter of fact, chicks should not be raised with the laying hens. ---- (As if interrupted) What is it, Brooks?

BROOKS: By raising the chicks separate from the old stock, it is easier to keep them from getting lice as well as worms, isn't it?

THE PROFESSOR: Yes. That's right. It's a good idea to keep brooding chicks in colony houses and move the houses from time to time in order to give the chicks clean soil.

In the case of the laying hen you should provide double yards for the houses. Grow green stuff in one yard while the other one is being used. Treatment of the soil with lime or with acid phosphate, especially where the chickens kill off the grass, is very advisable.

By frequent cultivation, you tend to bury many of the disease organisms as well as worm eggs and cause their destruction.

In sections of the country where green stuff can be grown every month in the year, it is well to use the triple yard system. That is, have three yards all of the same size; one in front of the house and two in the rear. Then you can keep the chickens in each of the three yards for four months at a time or you can keep them in one yard as long as green feed is available. Then you should turn them into the next yard while you reseed the one from which they have just been taken.

This makes an excellent system for keeping the soil sweet and clean. At the same time, it provides the chickens with an abundant supply of green feed the year around.

Another very important feature of management involves the selection of the stock. Weak or sick chickens should be eliminated whenever they show up. When you buy new birds, quarantine them for about 2 weeks before you put them with the flock. And whenever disease appears, take the diseased chicken out of the flock at once to prevent the disease spreading to others.

But starting next week, we are going into this matter of poultry health more thoroughly. We will touch upon some of the chief troubles which often cut down profits tremendously.

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U. S. Radio Farm School Fri., Jan. 21.

SHORT COURSE: Dairy Herd Management.

LECTURE No. 8: Management of the Bull.

ANNOUNCEMENT: The second topic for brief discussion on the Radio Farm School is "Management of the Bull." We are urged by the U. S. Department of Agriculture, which is responsible for this information, to ask all listeners who have not enrolled to do so without delay while the supply of printed lessons are still available. Twenty-four booklets, including 216 radio talks, are mailed free of charge from Washington to all who enroll in the U. S. Radio Farm School.

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(The characters speaking during this lecture are: The Professor himself; and Spencer, Brown, and Allen, members of the class.)

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(Sound as of automobile stopping - may be introduced here)

THE PROFESSOR: Well, here we are!

Climb out, boys! I want you to get some first hand information on how to handle a bull.

I've asked you all to come out here with me to Jim Spencer's place, because he has a practical and safe shed and pen for his bull. He followed one of those plans which the Bureau of Dairy Industry of the U.S. Department of Agriculture sends to any dairy farmer that asks for them.

Notice how his shed opens into the yard there. That's practica You see the shed is left open on the south side. That's a good idea, too except in the coldest climates.---- What's your bull's name Spencer?

SPENCER: His registration name is about a mile long. My boy calls him "Pete" for short.

THE PROFESSOR: I see you have a good big ring in his nose. Does he give you much trouble?

SPENCER: No, Pete is as gentle as a lamb --- but Professor I'm not trusting any dairy bull that ever lived.

THE PROFESSOR: Did you fellows hear that --- Spencer is certainly right --- 'Unloaded' guns and 'gentle' bulls are in the same class. Many persons have been killed or permanently injured from taking chances with them. No matter how quiet and gentle a bull has been, he is likely to be in a bad humor at times.

ALLEN: What's the best time to ring a bull, Professor?

THE PROFESSOR: When he is anywhere from 8 months to 1 year old. A copper ring, 2 to 2-1/2 inches in diameter, will do at that time. But, Allen, you should replace it by a larger and stronger gun-metal ring when the bull is two years old.-----

Here's a feature I want to call your attention to. See this feeding alley in front separated from the pen. This enables Spencer to feed 'Pete' without going in the pen.-----

And notice this fence, Holton. Its built of 2 x 6 rough milled planks from this farm, nailed on the inside of strong posts set in concrete. Its six feet high so that the bull cant jump over it.

You should never keep a bull in a yard or pasture that does not have a strong substantial fence. After he has once broken through, it is much harder to keep him in. Reinforced concrete posts with iron pipes run through holes in the posts make a strong pen that will last a long time if it's built right. However, it is pretty expensive. The state hospital has a pen of this kind. Poles and rails are practical and cheap on some farms. Mr. Jones up the road here has one made of woven wire with two strands of barbed wire above. ---- Be sure the gates are strong and equipped with reliable locks and catches.

BROWN: That bull doesn't look any too amiable to me. Look how he's eying us. Those are wicked looking weapons he's got on his head, too.--Professor, shouldn't he be dehorned?

THE PROFESSOR: No Brown. Not if Spencer expects to sell him or show him. It might hurt his selling price. Of course, it would make him easier to handle in case he gets unruly. But if he's properly handled, it shouldn't be necessar Unless the horns are removed by caustic before the animal is a week old, bulls should be at least two years old before they are dehorned. Then an expert should do it.--------

'Pete' seems to have lost interest in us. See--- he's going over there to butt that big wooden block hanging on the chain.----- That's a good device you've got there, Spencer. 'Pete' ought to get quite a bit of exercise out of that block.

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Many bulls, you know, are found to be sterile or slow breeders after their value has been proved. Often, the trouble is caused by close confinement and lack of exercise. Even with a large pen like this, you've often got to force a bull to take exercise.----Allen, I believe you were telling me that you yoked up the bulls on your place like oxen, were you not?

ALLEN: Yes, sir. We make 'em plow, haul manure, and pull stumps, and do other farm work.

THE PROFESSOR: That's good. Or in cases where there are two or more bulls -- just turn them out together. They'll get considerable exercise. But in that case, they'd have to be dehorned.

BROWN: How about using a treadmill?

THE PROFESSOR: Well, you can lead him to the mill, but some bulls require watching. He may learn a few tricks for stopping the mill. Then, too, if the treads become wet and slippery, he may fall and hurt himself.

If you don't have a pen for exercising your bull, you can tie him to a ring which slides on an overhead cable. Or you can use a revolving sweep. But you should make some provision for exercise. One device will work with one bull but not with others.

You'll notice Spencer has a water tank there in 'Pete's' pen. That's the best way to supply a bull with plenty of pure water.

SPENCER: Yes, Professor, but there's one thing that's got me figuring. 'Pete' seems inclined to put on too much fat. He's getting more sluggish than he was. I've been thinking about cutting down on the amount of grain.------ Just what is a good grain mixture for a bull in heavy service?

THE PROFESSOR: Have you got your pencil, handy? Here's a good one. 300 pounds of ground oats, 200 pounds of wheat bran, 100 pounds ground corn or barley, and 100 pounds of linseed-oil meal.

You should feed from 4 to 10 pounds of grain every day, depending of course, on the size of the bull and the kind of roughage he gets.

SPENCER: What kind of roughage should he get?

THE PROFESSOR: Legume hays, including alfalfa, clovers, vetches, soybeans, and cowpeas, are best for keeping a bull in good condition. They are high in protein and minerals. From 10 to 20 pounds a day is enough. But never feed your bull spoiled, musty, or leftover hay.

SPENCER: How much silage can you feed?

THE PROFESSOR: You can give them 10 to 20 pounds of silage a day without hurting their breeding powers.------

Well, boys, I guess we had better be getting back. Spencer, we enjoyed looking over your bull's quarters. I think all of us can see that your shed is big enough for 'Pete' to move and turn freely. It's comfortable. You have made provision for exercise in the pen, and for ease and safety in handling. They're the main points to keep in mind.

And, by the way, Spencer, I hope you'll be with us next week. We're going to start a new course in dairy cattle breeding. -------

Well --- Thanks for the demonstration --- so-long.

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PROGRAM U. S. RADIO FARM SCHOOL. RELEASE Fri. Jan. 21/27.

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SHORT COURSE: Feeding Dairy Cattle

LECTURE No. 8: Feeding the Dairy Heifer.

ANNOUNCEMENT: We start the U. S. Radio Farm School at this time with a short discussion on the subject of "Feeding the Dairy Heifer." This is the regular Friday Dairy period. Our radio schoolmaster, the spokesman for the U. S. Department of Agriculture, will talk to the class. Remember, please, that all the 216 lessons are supplied in printed form upon your request for enrollment in the Farm School.

(The characters speaking during this lecture are:
The Professor himself; and Weller, Norton, and
Combs, members of the class.)

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(Four or five raps -- as if on desk)

The PROFESSOR: Order, please!

This is our last class in the short course on dairy cattle feeding. Next week at this period we shall begin a short course on dairy farm engineering with a lesson on barn building.

Right now, however, we have one of the most important subjects of this series. Of course, feeding dairy cows at any period of their lives is important. But feeding heifers is especially important---- because heifers are the most likely to be neglected.

Heifers are unproductive. For that reason, there is a general tendency to skimp on their feed, or, even worse, to give them spoiled or left-over hay, silage, or grain. Many cows are undersized and low producers because they did not get enough of the right kind of feed when they were young and growing. After a heifer is producing milk it is hard for her to make up the growth she failed to make as a younger animal because of poor feeding. (As if interrupted) What is it, Weller?

WELLER: Isn't it true, Professor, that heifers that are thin at the end of winter will usually make bigger gains the following summer on good pasture than those which have gained heavily during the winter?

THE PROFESSOR: Yes, but that doesn't mean you should feed them so they will be thin. You should feed them so they will grow gradually and normally at all times They should be kept in moderate flesh and in healthy thrifty condition.-------

Calves, you know, should be weaned when about six months old. If they are inclined to be undersized at that time, you should continue to feed skimmilk for a month or two. It is important that calves get the proper attention at weaning time. The change from skimmilk and grain to roughage and grain is radical. Unless it is made gradually, the calves are likely to get a setback.

Fall calves weaned in the spring and turned on pasture should do well in the summer. But heifers at that age haven't developed any great capacity for rough feed, such as hay or pasture. It is hard for them to eat enough to get enough nourishment. You should give them grain in addition to pasture. They are growing rapidly. They need plenty of growth-making feed, especially protein and lime.

As you all know, spring calves are harder to raise than fall calves. They are annoyed by heat and flies during the summer and are likely to be in poor condition in the fall. After they are weaned and put on dry feed they should be fed grain liberally all the first winter. After that, they can be put on pasture and raised in the same way as fall calves.

Investigations and practice both indicate that heifers should be raised largely on roughage. Legume hays are by far the best. If cut at the proper time and well cured, they are well liked, are not coarse and stemmy, contain large amounts of growth-promoting and muscle-making proteins and are rich in minerals, especially lime.

Protein and lime are especially important for growing heifers. The protein makes muscle and tissue. The lime is used to build bone or framework. Then, too, the heifer should have a reserve supply of minerals stored in her body. She will need them when she starts producing milk. -------

Alfalfa is the best of the legume hays. Clover is next. Soy beans and cowpea follow in order. But experiments show that to obtain normal growth heifers should be fed some grain in addition to legume hay -------- (As if interrupted) Well, Norton?

NORTON: How about feeding silage alone?

THE PROFESSOR: Well, silage is a good roughage for growing heifers. But it is too bulky and too low in protein to be fed as the only roughage.. A combination of good quality legume hay and silage makes the best roughage. In fact, heifers over a year old will often make satisfactory growth on it --- even if no grain is fed.

NORTON: How much silage should you feed?

THE PROFESSOR: All they want of it. They will ordinarily eat about two pounds of silage to one pound of alfalfa hay.

Pasture grass is also an excellent roughage. If it is of good quality and plentiful, most heifers will need little additional feed during the summer. However, many pastures are poor or are overstocked. For that reason, it is well to supply silage and other roughage and some grain during a part of the

summer, at least.--------(As if interrupted) Well, Combs?

COMBS: Professor, I want to know what to feed my heifers right now. You said they ought to have grain. How much grain?

THE PROFESSOR: That, of course, depends on their size and the kind of roughage you have.

If you have it feed them all of the corn silage and legume hay they will eat. Then, in addition, you should give the heifers less than 10 months old about 2 pounds of grain a day. The grain can be corn or a mixture of other grains if they are cheaper. The heifers within two or three months of calving should have 3 to 5 pounds of grain to put them in good condition for calving.

NORTON: When you've got silage, but no legume hay, how should you feed 'em?

THE PROFESSOR: In that case, feed all the silage they will readily eat and some dry roughage, such as ordinary hay or fodder. Then give each heifer three pounds of grain a day. One half of the grain mixture, in this case, should be made up of feeds high in protein, such as linseed-oil meal, cottonseed meal, soy-bean oil meal, or gluten feed. The other half may be corn, oats, bran, or other feeds of like composition, depending upon the prices.

On the other hand, you who have plenty of legume hay, but no silage, may feed all the legume hay the heifers will eat and about two pounds of corn or similar grain a day.

COMBS: Suppose you haven't either legume hay or silage?

THE PROFESSOR: In that case, you had better buy some legume hay--enough to make up one-half of the roughage fed. Then feed a grain mixture of one-third by weight of high protein concentrates and two-thirds of corn or similar grain. Grind the grain for dairy heifers.

But, remember this: these alternatives are really only makeshifts in the feeding program when legumes are not available. They are not satisfactory for continued feeding because they contain little or no lime. The growing animal needs fairly large amounts of lime. For that reason, my advice to you is to plan to grow all the legume hay you need. In any event, you should provide dairy heifers with it in their ration.

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PROGRAM U. S. RADIO FARM SCHOOL. FIRST RELEASE Mon. Jan. 24.

SHORT COURSE: Meat Production and Use.

LECTURE No. 1: Slaughtering Hogs and Curing Pork.

ANNOUNCEMENT: The U. S. Radio Farm School starts six new short courses this week, each continuing for the next 2 months. All of the lessons are available in printed form to enrolled students, and a post card request is all that is necessary to get the 24 booklets. Monday, as usual, is livestock day and the first talk is on the subject of "Slaughtering Hogs and Curing Pork." The radio schoolmaster in charge.

(The characters speaking during this lecture are: The Professor himself; and "King" Cole, Trent, and Owens, members of the class.)

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THE PROFESSOR: Well, boys, it looks as if we were going to have a big class. Evidently, a course on production and use of meat sounds interesting ---

But, that's not surprising --- Nearly everybody is either a meat producer or consumer; or both --------

COLE: Is this course going to include demonstrations in the use of meat, Professor? -----

OWENS: Listen at 'King' Cole --- Always looking for an extra meal ---

THE PROFESSOR: That might not be a bad idea, Cole. It might get you fellows to class on time--- but I'm afraid it would take a lot of meat for this crowd. I suppose your idea would be to start off this first lecture on slaughtering hogs and curing pork with a pork dinner.

TRENT: I could give you a good recipe for sausage for that meal.

THE PROFESSOR: Give it to us, Trent. Even if we don't have use for it here - we can use a good sausage recipe.

TRENT: Well, take 4 pounds of chilled pork trimmings-- about two thirds of which should be lean. Mix with it, 5 level teaspoons of salt, 4 level teaspoons of sage, and 2 level teaspoons of pepper. Grind them all together. If you want to, you can add 1 level teaspoon of nutmeg, cloves, or 1/2 teaspoonful of ginger or coriander. But whether you stuff it or pack it in bulk, you ought to rechill it promptly.

OWENS: Speaking of recipes, Professor, what's the best method of curing a mild bacon?

THE PROFESSOR: The brine method is generally best, Owens. For each 100 pounds of green bacon, you should use 8 pounds of salt, 2 pounds of sugar, 2 ounces of salt peter, and 6 gallons of water. For hams and shoulders use the same mixture, but only 4 1/2 gallons of water.

Or you can rub the same cure on the meat in the dry form. Put one half on the first time. Then three days later, put on one fourth of it. On the 15th day, you can put on the remaining fourth.

OWENS: How long should it take to cure a ham?

THE PROFESSOR: You should allow two days per pound for the dry cure and 4 days per pound in pickle. That is, a 10-pound ham or shoulder will dry cure in 20 to 25 days, and will pickle cure in about 40 days.

OWENS: What's the best temperature for curing?

THE PROFESSOR: Between 36 degrees and 38 degrees Fahrenheit is ideal. Lower temperatures hold back the cure. Higher ones hasten it --- that is, if they are not so high as to cause spoilage.-----

But Owens, you can get detailed information about curing and recipes for the different products by just dropping a postal card to the Department of Agriculture at Washington and asking for their bulletin on the subject ---- But get to your seats, men--- we are way late now.

(Raps on desk as if for order) The class will be in order!

As you all know, home curing of pork is an old practice.

But it nearly went out of style.

I'm glad to say, however, it's fast coming back into style. Every farm should produce the pork and pork products which are consumed on that farm. Farmers are coming to realize that. They are finding out that selling hogs and buying pork involves profits --- but not for the farmer that does it.

The hogs you select for killing should be healthy. A hog in medium condition, growing rapidly in weight, yields the best quality of meat. Hogs between the ages of 8 months and 12 months are at the most profitable age for slaughtering.

In sticking, you should point the knife directly toward the root of the tail and hold in a line with the backbone. Thrust it in directly in front of the breastbone, and keep it in a straight line so as not to stick a shoulder. If you stick the shoulder, you may cause the blood to clot. That means waste in trimming or a shoulder that will not keep well. Avoid sticking the heart.

In scalding, the best temperature is about 145 degrees Fahrenheit. Carcasses should be chilled to 34 degrees within 24 hours if possible. They will chill faster if they are split when warm but it is better to cut the carcass after chilling. And whatever cutting method is used, you should trim smooth the pieces saved for curing. You can use the tag ends and corners for lard and sausage.

You remember it used to be the boast of the packers that they used everything about a pig but its squeal.

There's a good tip in that for some of you hog killers. Save all pieces of meat for sausage. There are many ways of converting it into a palatable product. Then all the waste fat, trimmings, and skin should be rendered and the product used to make soap.

The offal and any other refuse from slaughtering operations should be either burned to ashes, so they can not be eaten by hogs or rats, or else safeguarded by rendering or boiling. The parasites which spread the painful disease, trichinosis, are spread solely by muscle tissue from infested animals eaten raw or imperfectly cooked.

You should crush or grind the bones for chicken feed.

In curing, be sure never to put meat in cure until the animal heat is out of it. And always pack the meat skin-side down while curing -- except the top layer in a brine cure. That should be turned flesh-side down.

You should keep close watch on the brine. If it becomes 'ropy', change it.

And do not forget to turn or change meat several times during the curing process. Brine-cured packs should be broken and repacked in the same pickle on the 5th, 15th, and 30th days after they are put down. (As if interrupted) Well, Owens?

OWENS: Which is best, slow or fast smoking?

THE PROFESSOR: Slow smoking is much better. There's much less chance of causing the meat to drip. It takes more time, however, to smoke dry-cured than brine-cured pork.

TRENT: Professor, do the people in this country eat more pork than they do beef.

THE PROFESSOR: Yes, but we'll take up the question of meat production and consumption next week. We'll find out who the big meat eaters are in this world.

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UNITED STATES DEPARTMENT OF AGRICULTURE
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PROGRAM U. S. RADIO FARM SCHOOL SECOND RELEASE Mon. Jan. 24.

SHORT COURSE: Hides, Wool, and Mohair.

LECTURE No. 1: Country Hides for Leather.

ANNOUNCEMENT: The next radio lesson on "Hides" starts a new short course on the subject, "Hides, Wool and Mohair", a side-line to farming, which we hear little about as a rule. Be sure to request the 24 booklets in which are printed the complete set of radio lessons on poultry, livestock and dairying. The U. S. Department of Agriculture, which sponsors the Radio Farm School, sends them to all enrolled students without charge.

(The characters speaking during this lecture are: The Professor himself; and Armstrong, Moss, and Tabb, members of the class.)

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THE PROFESSOR: (Aside -- as if directing the placing of exhibits for use during the lecture.) Just hang that hide to those map nails above the blackboard there, Moore -----

I'll put this one here on the table --- I guess the class can see it all right -----

We can put this one on the other side -------

ARMSTRONG: Why all the leather draperies, Professor?

THE PROFESSOR: I just want to show you how you are skinning yourselves on hides.

ARMSTRONG: You mean, getting skinned don't you, Professor? Look at this new pair of shoes I just bought -- They made me pay for them, I'll tell you! --- but the last hide I sold hardly paid me for the trouble of taking it off.

THE PROFESSOR: Well, Armstrong, of course, there's a lot has to be done to hides before they get back to the farm as leather goods. Naturally, that makes a big spread in price.

ARMSTRONG: They tell me the big fellows get a good deal more for hides than we do.

THE PROFESSOR: Yes. But did you ever stop to think - it might be your fault. The better the hide, you know, the better the price ---- I just want to show you men a few things (Raps on desk several times as i~~f~~for order) The class will give me their attention!

You farmers and stockmen, are among the biggest users of leather. So you have an interest in the quality of hides and skins, both from the standpoint of the producer and consumer. Better hides mean more leather, better leather, and cheaper leather. And the better the hide, the better price it will bring.

About one third of our entire domestic supply of leather comes from "country" hides. That is, hides taken off by farmers, ranchmen, and local butchers, who are usually inexperienced in skinning and lack the special equipment and facilities of the large, wholesale slaughtering houses.

"Country" hides originate in small, odd lots, often in scattered and remote sections. In general, they are treated in a careless, inefficient manner during skinning, curing, and marketing. Often the yield of leather from such hides is low and uncertain, and the product is of only limited use.----- (As if interrupted) Well, Moss?

MOSS: Professor, we can't get very expert when we don't have more than a hide or two a year, can we? As for me, I don't raise stock for hides and skins -- I count anything I get for a hide as so much gain.

THE PROFESSOR: That's the wrong attitude, Moss. You should consider hides valuable in the same way that meat and milk are valuable. Better "country" hides and skins are entirely feasible. Indeed, they are well worth while. You should exert every reasonable effort to make them of first quality.----

Just look at this hide here on my desk for a minute. You see those knife cuts there --- right on the best part of the hide. Of course, that's where the skinning is hardest --- but a little care would have prevented that. Why just that one big cut there is enough to make that hide unfit to be tanned into belting leather.

And look at this hide. Rotten spots right here -- where meat was left on the hide in skinning. The Department of Agriculture will send you instructions how to skin to avoid such things - if you don't already know.

The different parts of a hide have different "Fiber" quality. Consequently, they make leather of different selling values. For that reason, the shape of the hide after skinning is important. If the "opening up" cuts at the beginning of the skinning are not properly made, the hide will be of less value to the tanner.

Now look at this hide. Not much left of it, is there? Hardly worth tanning. That shows you what failure to cure properly will do. A raw hide or skin will spoil about as quickly as so much fresh meat. You should cure it promptly and thoroughly. Use about a pound of salt to a pound of hide. Don't leave a spot as big as a dime without some salt on it. And see that you use new clean salt. About two or three weeks after salting, the hide will become "salt firm" or "salt hard" and can then be marketed.

Where it is hot and dry, as in the far southwest, hides and skins are often cured by air-drying without salting. Where this method is used, the hides should

be cured as fast as possible in a good current of air but not in the direct sunlight and protected from falling weather.

I want you all to remember that sound serviceable leather cannot possibly be made from a poorly cured hide. Sometimes the leather may look all right, but much of its fiber strength has been destroyed.------

MOSS: How about branding -- don't branding marks hurt hides?

THE PROFESSOR: They most certainly do, Moss. I was just coming to that. Hot iron branding is the cause of a tremendous aggregate annual loss of first quality leather. But that's not confined to country hides. All hides are affected.

Just look at this hide on the blackboard here. Here's the grain side. Now, let's turn it over. There's the flesh side. See how the brand has penetrated. The value of that hide is reduced from one-fourth to one-half by that brand. The leather where the brand is is hard and brittle. A belt with such a branded spot would not only not run smoothly but would soon break at the damaged spot.

MOSS: You have to brand cattle some way, Professor.

THE PROFESSOR: Well, if you have to brand them, don't have a brand running all the way across the side of an animal. Make the marks as small as practical. Brand on the neck or even on the shoulder. The butt portion of the hide makes the best leather -- don't damage that - if there's any way to help it.

There's another thing that causes millions of dollars of damage to hides -- that's the cattle grub. Here's an illustration of that. This hide I have here is what the trade calls a pepper-box -- it's so full of grub worm holes. Obviously it would not make a very good shoe sole, shoe upper, or machine belt ----------- (As if interrupted) Did you have some question, Tabb?

TABB: Speaking about 'country' hides, you advise us to use more care and take more trouble to produce better hides --- but it don't get us anything - I had some good ones and bad ones, I got the same pay for both kinds. They bought them at a flat rate.

THE PROFESSOR: Well, Tabb, that's a big question. We'll talk about that next week when we discuss marketing. You should skin carefully, cure properly, and ship promptly. In that way, you'll produce the better quality hides.---

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UNITED STATES DEPARTMENT OF AGRICULTURE

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PROGRAM U. S. RADIO FARM SCHOOL

FIRST RELEASE Wed. Jan. 26.

SHORT COURSE: Poultry Incubation.

LECTURE NO. 1: The Value of Hatching Early.

ANNOUNCEMENT: The U. S. Poultry Farm School starts this evening with a timely lesson on the "Value of Hatching Early". This is the first of a new series of short courses on poultry incubation that will follow at this period each Wednesday.

(The characters speaking during this lecture are: The Professor himself, Perkins, Godfrey, and Rogers.)

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(Tapping -- as if on blackboard with a piece of chalk)

THE PROFESSOR: It you will all look over here at the blackboard, we will begin now!

I've drawn a rough chart here. It shows the ups and downs of egg prices during the year.

Across the board, you see, we've marked twelve vertical colums for the twelve months. Up and down the board, we've indicated the range of prices.

Now note the curved line which represents the trend of prices. You'll notice, the line dips down lowest here in the month of April. Then it runs fairly steady to July. Then it starts climbing in August and keeps it up until December.

Now it keeps up fairly high through January. Then it starts down again. In other words, from August to January is the season of highest egg prices. If your egg production is good during that period, your profits will be increased materially. -----------Perkins!

PERKINS: Yes-sir!

THE PROFESSOR: Do you get plenty of eggs during the fall and winter when prices are high?

PERKINS: No. I do not. My hens don't lay much at that time.

THE PROFESSOR: Hens are molting, then, eh? ---- Well, hens are bound to molt. It takes them anywhere from 30 to 90 days to go through with it, too. That being the case, Godfrey, tell us where the high-price winter eggs come from.

R.F.S. 1/26/27

GODFREY: The pullets.

THE PROFESSOR: Eggs-actly! Thousands of farmers lose enormous sums of money simply because they fail to realize that pullets are practically the only source of eggs at this time of the year. (As if interrupted) Well?

PERKINS: But, Professor, my pullets haven't begun to lay when the old hens quit.

THE PROFESSOR: Your pullets should be in good laying condition by the middle of October or fore part of November at the very latest.

You must realize that profits in poultry raising depend to a considerable extent upon fall and winter egg production. The big part of poultry receipts are obtained from eggs. In the Middle West, 60 per cent of the total poultry receipts are obtained from eggs. And in commercial poultry-raising sections such as New Jersey and California, eggs bring as high as 85 per cent of the total receipts.

You should all realize, then, that good fall and winter egg production, when eggs are high in price, determines largely whether the year's work is to show a profit or a loss.------(As if interrupted) What is it, Rogers!

ROGERS: It's a little late to be talking about winter egg production, now, isn't it, Professor?

THE PROFESSOR: Do you think so!

Well, now, Rogers, perhaps you can tell the class how old a pullet is when it comes into laying.

ROGERS: Leghorn pullets commence when they are about six months old. The heavy breeds, such as Plymouth Rocks, Rhode Island Reds, and Wyandottes, should begin when they are about 7 months old.

THE PROFESSOR: Eggs-actly! And that being so, in order to have pullets laying before the end of October, when should the chicks be hatched? Count back 7 months for your heavy breeds and 6 months for your Leghorns.

ROGERS: That would be in April, - early in the month for the heavy breeds and toward the end for the leghorns, wouldn't it?

THE PROFESSOR: Yes, not later than that. In the South, Leghorns should be hatched by the middle of April. The heavier breeds should be hatched not later than the middle of April in the North. And somewhat earlier in the South.

The earlier pullets are hatched, the earlier they commence to lay. Moreover, it has been demonstrated that early maturing birds usually make the best annual layers. If you want to take advantage of high egg prices during next fall and early winter, hatch early. ----

Can anyone here suggest any other advantages from hatching early? ---- All right, Godfrey.

GODFREY: When chicks are hatched early, you can sell the males as broilers early in the season when the prices are usually highest.

THE PROFESSOR: Yes. But I'm afraid the class does not quite get what you mean.

GODFREY: Well, for instance, chicks hatched about the middle of April could have the males taken out and sold as broilers about the middle of July. The price is usually good then because other kinds of fresh poultry meat are scarce.

THE PROFESSOR: Yes. Can you think of any other advantage in early hatching?

GODFREY: In that way, you can get early fryers for sale before most of the poultry goes on the market in the fall. You can also have well-matured roasters ready for the Thanksgiving market.

THE PROFESSOR: That's right. An unnecessarily large number of immature, scrawny chickens go to market every year. Early hatching will do a great deal to counteract that, because the cockerels will have a longer season to build up a proper frame and then will have some time to put on a finish. ---- Perkins, tell us some other advantage in hatching early.

PERKINS: You can cull the old hens earlier and so take advantage of higher prices for them in the market.

THE PROFESSOR: I hope you all see from what has been said that you should avoid late hatching -- Next week we will take up the question of the selection of eggs for setting -----(As if interrupted) What is it, Perkins?

PERKINS: Speaking of hatching, Professor, you might say 'It's the early bird that catches the cash."

THE PROFESSOR: Eggs-actly!!

# # #

UNITED STATES DEPARTMENT OF AGRICULTURE Radio Service OFFICE OF INFORMATION

RECEIVED U. S. Department of Agriculture

PROGRAM .... RELEASE ....

U. S. RADIO FARM SCHOOL. SECOND Wed. Jan. 26.

SHORT COURSE: Common Poultry Diseases.

LECTURE No. 1: Disease Prevention.

ANNOUNCEMENT: We start another new poultry short course in the U. S. Farm School this evening, - a subject of interest to every poultryman in the country. At this period, for the next eight weeks, our Radio Professor will talk about Common Poultry Diseases. His topic tonight is "Disease Prevention". The Radio Service of the Department of Agriculture has just advised us that another set of booklets containing the printed lessons of the past two months have been sent to all students enrolled in the farm school. There are 24 of the little booklets in all that will be sent free to you upon request. Go ahead Professor -

(The characters speaking during this lecture are:
The Doctor himself; and Martin, Bruce, and Hamilton,
members of the class.)

****

(Four or five raps -- as if on desk)

THE DOCTOR: The class will come to order!

During these next few weeks, we are going to talk about some of the more common diseases of chickens.

As you know, a great many things can happen to a chicken.

I would just like to ask you, where you would have me start----(As if interrupted) Well? -- I don't know all your names yet?

MARTIN: My name's Martin.

THE DOCTOR: All right, Martin, what will you have?

MARTIN: Tell us something about roup, Doctor. --------

BRUCE: How about T-B in chickens? --------

HAMILTON: Chicken-pox is what I want to hear about --------

THE DOCTOR: One at a time, please! One at a time!

MARTIN: What's the best treatment -----

THE DOCTOR: Just a moment! -- We'll take up all those troubles and more before we get through. But before we get down to cases, I want to recall that old saying that "An ounce of prevention is worth a pound of cure." It certainly applies to poultry.

You've been hearing that all your lives. But, chances are, a good many of you have been letting it slide in one ear and out the other.

But by not applying it in your own poultry yards, you've probably been losing money. Prevention is a great deal cheaper than cure. Its cost is trivial -- compared with the effects of diseases upon the length of life and vigor of your chickens and upon your profits.

But, of course, in order to prevent diseases, you must understand something about them. Some diseases are caused by infection. Others result from faults of nutrition. Still others are traceable to the general conditions surrounding the flock.-------

------The man there on the end of the second row --- Bruce is your name, isn't it? ---

Well, Bruce, tell us what you do to prevent disease among your chickens!

BRUCE: I keep the premises thoroughly cleaned and disinfected -----

THE DOCTOR: I hope all the members of this class do that. What other measures do you take?

BRUCE: Whenever I buy any new chickens or bring any back from a poultry show, I quarantine them. I put them in a pen away from the rest of my chickens and keep them for two to four weeks --- so that any disease they may have, will have time to show up.

THE DOCTOR: Yes. And wild birds and pigeons are apparently responsible for the spread of disease among poultry flocks in some cases. You should discourage their visits in every way possible.

And speaking of visits, infection may be carried to premises on the shoes of a man or the feet of animals. For that reason, you should not permit your neighbor to visit your yards if he has unhealthy chickens at home. And, of course the reverse is also sound policy. If you have sick chickens, you shouldn't visit his place and endanger his flock.

Then, I hope you all appreciate the importance of clean drinking water, clean foods, and clean grounds. You also appreciate the importance of burning or other proper disposal of diseased carcasses when disease does take any of your flock.

To sum up, now, Bruce. All these things we've mentioned can be classified as sanitation.

You can all put this down: The first rule of health is sanitation.

But, Hamilton, how about such diseases as rickets, false roup, and St. Vitus's dance?

HAMILTON: Rickets is due to not getting enough sunlight or not getting the right stuff in the feed. I don't know about the others.

THE DOCTOR: They are all in the same class. That is, they are what is known as deficiency diseases. They are due to the lack of certain elements in the ration. On the other hand, obesity and gout are attributed to excessive feeding of certain foodstuffs. What do you do to prevent such diseases among your chickens?

HAMILTON: I don't know anything about those diseases. I feed my chickens a mixed grain ration with meat scrap and shell or bone. I give them a regular allowance of green foods and clean water ---

THE DOCTOR: As long as you feed that way, it's not likely that you will be worried with nutritional disturbances. Such feed should contain all of the vital elements of nutrition needed by chickens. I'd say you were following the second rule of health.

The first rule of health is sanitation. And the second rule of health is proper nutrition.

The third rule of health, I would say, is good surroundings. That is you should provide roomy hen houses. They should be built properly. And when I say built properly, I mean they should give good ventilation. At the same time, they should keep out draughts and dampness. Then you should also provide that the chickens get enough exercise and suitable exposure to the direct rays of the sun --- not sunlight filtered through ordinary window glass.

I'd advise you to divide up your large flocks into smaller units. Especially, you should keep separate birds of various ages or of different species. The smaller flocks will be more convenient to feed and care for --- but what is more important they will aid in disease prevention.

In the lessons which will follow at this period during the next few weeks, we are going to take up specific diseases. Next week, we will discuss the prevention of roup, the way to recognize it when you see it, and the way to treat it.

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UNITED STATES DEPARTMENT OF AGRICULTURE

Radio Service

OFFICE OF INFORMATION

JAN 1
U. S. Department of Agriculture

PROGRAM U. S. RADIO FARM SCHOOL. FIRST RELEASE Fri. Jan. 28.

SHORT COURSE: Dairy Farm Engineering.

LECTURE No. 1: Dairy Barn Construction.

ANNOUNCEMENT: The first lecture in the U. S. Dairy Farm School this evening starts a new short course on "Dairy Farm Engineering." The first lesson is about barns and the best way to handle that subject is to go on an inspection trip. So hop in your cars and join the tour.

(During this lesson the dairy engineering class is supposed to be engaged in the inspection of a dairy barn. The characters speaking are: The Professor himself; and Reynolds, Bailey, and Tims, members of the class.)

****

(Sound as of automobiles stopping may be introduced here.)

THE PROFESSOR: Pile out, boys!

That's Ed Walker's new barn up there-----------How you like it, Reynolds?

REYNOLDS: It looks good from here. I'd say, he has plenty of room in the second story there for storing feed ----- Where did he get his plans, anyway?

THE PROFESSOR: He built it from blueprints furnished him free by the Bureau of Dairy Industry of the U.S.Department of Agriculture.

REYNOLDS: That so? That's where Henry Moore got the plans he used in that one-story cow stable of his, I was telling you about.-------

THE PROFESSOR: (As if calling to a group of men in advance of the rest of the party) Hey!! --- You fellows up front there ---- Wait! ----- Don't go in the barn yet! ---- (As if to those with him) There are a few things on the outside I want the class to notice first --------

Gather around closely, now --- so you can hear.

Look how that land lies there -- Ed has picked a dry, well-drained site for the building -- that's important.--------------

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

* * *

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

And notice -- the ends of the barn are toward the north and south. That lets the morning and afternoon sun in the windows on the sides. It gives the most sunlight inside.

And you see -- the barn is placed so none of the other buildings cut off any of the light. Also notice that windbreak of trees over here on the north. That's a big advantage at this time of the year.

You can all appreciate how convenient this barn must be for unloading hay and feed and for filling the silo. Ed has evidently planned carefully to avoid driving through gates and yards to get the feed to the barn ------

Now, let's take a squint at the inside---------

Open the door there, Jones! ----- (Sound as of lifting of door latch)

Hustle on in, all of you!

BAILEY: Plenty of light in here, Professor!

THE PROFESSOR: Yes, I wanted you all to notice that feature especially, Bailey. Dairy cows need sunlight for their own health. Then, sunlight also tends to kill disease germs such as often lurk in dark and dirty stables.

Look at the windows there. You see they are higher than they are wide. That arrangement exposes more floor to the sun than low wide windows would.

TIMS: There's a lot of heat lost through the windows with all that glass, isn't there, Professor?

THE PROFESSOR: Well, Tims, you'll notice Ed has double-glazed sash in those windows. Some dairymen use storm sash in the winter. Either is better than small windows which do not flood the barn with sunlight.

TIMS: How much window space should you have?

THE PROFESSOR: Four square feet of glass per cow is desirable. Ed has even more than that - I'm glad to see.

Now notice these stalls and the platforms for the cows. You'll see that the lengths of the platform very from one end of this row of stalls to the other. That's to accomodate the different size cows. Just what the difference here is, I can't tell without measuring -- but for the smaller breeds the variation is usually from 4 feet 4 inches at one end to 4 feet 8 inches at the other. For the larger breeds it's from 4 feet 8 inches to 5 feet -- that is, measuring from the inside of the stanchion curb to the edge of the manure gutter.

That gutter, I'd say, is about 7 to 9 inches deep. It's at least

16 inches wide. The bottom of it slopes a little from the stall platform. You also see it slopes lengthwise toward the drain.

Now the manger should be about 2 feet 6 inches wide and the back of it should slope away from the cow ----- (As if interrupted) Were you going to say something, Bailey?

BAILEY: He has a concrete floor here. Is that the best material for a cow-stable.

THE PROFESSOR: Well, it's certainly best for alleys, driveways, gutters, and mangers. It is durable. It can be kept clean with the least amount of labor and expense. Some object to its use for cow-stall floors -- but it answers very well when plenty of bedding is used ----

But you'll notice Ed uses a removable plank overlay in each stall. That's a good idea. He can take it up in the summer --- Well, Tims?

TIMS: How about plank floors bedded in the concrete permanently?

THE PROFESSOR: They are not satisfactory -- they soon become insanitary.

BAILEY: Cork brick makes a good floor, doesn't it?

THE PROFESSOR: Yes, it does. Creosoted wood blocks also have been used for cow-stall floors. But you must lay them in hot pitch or asphalt. They sometimes swell when wet, you know, -- so they would not have proper allowance for expansion if you laid them in concrete.

In regard to concrete, however, I want to caution you all to lay concrete floors in dairy barns so the floor will have the proper pith to the drain and be properly finished.

The manger and gutter should be troweled smooth and hard on the surface with a steel trowel. But all the alleys where the cows have to walk should be floated with a wood float. When the cement has partially set, you should mark it off in squares or roughen it thoroughly. The cows are likely to slip and hurt themselves if the concrete is left smooth.

In a stable not over 50 feet long the whole floor, including mangers, stanchion curb, cow platform, gutters, and alleys, should have a fall from one end of the building to the other of about 1 inch in 10 feet. In longer barns, you may want to pitch from the ends to the center. Each manger should be provided with a drain at its low end into the gutter. The gutter drain should be connected to glazed terra-cotta sewer pipe to carry the wash water away from the building.

REYNOLDS: How about ventilation, Professor?

THE PROFESSOR: Well, in that connection, I want you to see another barn. We'll take a trip out there next week. Right now, however, I want you all to just look around here and see how Ed has provided for it. I may want to ask you some questions about it next time.

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UNITED STATES
DEPARTMENT
AGRICULTURE

Radio Service

OFFICE OF
INFORMATION

PROGRAM U. S. Radio Farm School SECOND RELEASE Fri. Jan. 28

SHORT COURSE: Dairy Cattle Breeding.

LECTURE No. 1: Principles of Heredity.

ANNOUNCEMENT: Our second Monday evening dairy short course, in the U. S. Radio Farm School, starts this date with an interesting series of eight lessons on breeding. You'll want this material in printed form for later reference and we suggest that you make your request at once, while Uncle Sam's supply of the 24 booklets, containing the 216 printed radio lessons can be obtained free of charge.

(The characters speaking during this lecture are:
The Professor himself; and McClure, Lewis, and
Zimmermann, members of the class.)

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(Sound as of two coins falling on table)

McCLURE: Both heads -- I win -------

LEWIS: All right -- I'll call them this time -- Tails it is!

(Sound as of two coins falling on table)

McCLURE: Keep your eye out for the Professor -------

LEWIS: One head -- and one tail -- I guess we break even this time ----

McCLURE: I matched this way the other day for two hours -- when I got through I was right where I started.

LEWIS: Sure -- Where's your mathmetics? -- don't you know that according to the laws of chance, you pitch up two coins this way say 100 times, two heads will fall about 25 times, head and tail 50 times, and two tails 25 times?

(Sound as of two coins falling on table)

McCLURE: Where do you gett that stuff. If that was so, you never could win-- That's mine ----- Tails this time.

LEWIS: Well, of course it don't work out that way every time -- but the more times you try the nearer it comes to averaging up that way -- One-fourth heads, one-fourth tails, and one half mixed -- that's the way it goes.

(Sound as of two coins falling on table)

THE PROFESSOR: Here!! - here! - men!! None of that --- Get to your seats!

(Three or four raps as if on desk) The class will be in order!

With this lesson, we are beginning a course on breeding dairy cattle. First, we want to point out the general plan of heredity.

You cattle breeders owe a lot to that Austrian monk, Gregor Mendel.

You know he did a wonderful piece of work in crossing different varieties of garden peas and then keeping count of the results. In that way, he worked out laws of inheritance which have since been successfully applied not only to other plants but to animals as well.

He discovered that each trait or characteristic behaves as a unit. And that where the parents have two contrasted characteristics, one of the parental types is much more likely to show up in the offspring than the other type. In fact, the less likely type may not show up in the first generation cross at all. But it will reappear in about one out of four of the offspring in the next generation.

For instance, let's take the horns of cattle. As you all know, some breed have horns -- while others are born hornless or polled.

Now, if we cross a purebred horned strain of cattle with a purebred hornless or polled breed, all the offspring will be hornless.

As far as horns are concerned, all the calves will look like purebred hornless.

But they still have horns in their inheritance-- for when we cross these hybrid hornless, the horned condition of one of the grandparents shows up in about one out of four calves. Three out of four, however, are still apparently of the hornless type. (As if interrupted) All right, what's your question, Lewis?

LEWIS: Will the proportion of hornless to horned cattle be the same every time you cross a pair of those hybrids?

THE PROFESSOR: Not each time -- but the more cases you take the more nearly will you get that ratio of 3 hornless to 1 horned.

Now, I want you to note, that the one horned will breed true. When mated with a similar horned animal, no polled offspring can be produced. All will have horns.

But those three hornless are especially interesting. For, on the average, one out of the three will breed true to hornlessness. That is, when mated with another true-breeding hornless, nothing but hornless calves can be produced. The other two, however, are not pure hornless and will not produce only hornless offspring. They are mixed as to horns and hornlessness. Although they may

appear to be the same, when mated they produce 3 hornless to 1 horned.-------

I hope you get the drift here -- you see in reality the ratio is not 3 hornless to 1 horned as it appears to be, but 1 pure hornless, 1 pure horned, and two mixed. --- (As if interrupted) Well, McClure?

McCLURE: Isn't that just what it would be if it was merely a matter of chance?

THE PROFESSOR: Yes, McClure, It's pretty much the same as that coin tossing you were doing when I came in. Just as you will probably average one head, one tail, to two heads-and-tails, so in the rearrangement of hereditary factors we average one pure horned, one pure hornless, and 2 mixed.

LEWIS: But how do they get separated that way, Professor?

THE PROFESSOR: Well, Lewis, it's this way. /The germ cells of parents contain factors which determine the hereditary make-up of their offspring. When a new animal arises from the union of a male germ cell and a female germ cell, each of which carries a factor for the hornless condition, all the germ cells produced by such an animal must contain that factor. The same is true for an animal receiving factors for the horned conditions from both parents. But the animals which are mixed in inheritance, receives one factor for hornlessness from one parent and one factor for the horned condition from the other parent. So they transmit these two factors to individuals of the next generation.

As I have pointed out, if grandparents differ in one character, two different types may be expected in the grandchildren. If we were to select grandparents with two pairs of different characteristics, the grandchildren might be of four different types. As the number of character differences is increased, the probability of variation in the second generation following becomes greater.

All cases of inheritance, of course, are not so simple as the one of horns and hornlessness. But as with this trait so with many other traits, there is probably this same separation of hereditary factors and recombination according to the same principles.

McCLURE: But, Professor, just how do you apply this to improving dairy cattle herds?

THE PROFESSOR: We'll take up that question next time, McClure. But in weighing the probable part heredity has played, you should not overlook the effect of environment. Often, it is hard to say whether heredity or environment is responsible for the appearance of an animal. For example, a calf may become stunted through bad feeding and never attain its hereditary capacity for growth. Or an injury in early life may be responsible for an undersized cow. Consider these things, before you draw any conclusions as to heredity.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL. First RELEASE Mon., Jan. 31.

SHORT COURSE: Meat Production and Use.

LECTURE No. 2: Meat Production.

ANNOUNCEMENT: "Meat Production" is the first subject for discussion on the U. S. Radio Farm School, a topic of considerable interest to the consumer as well as the man on the farm who produces it. Remember to get in your request for the 24 booklets, including 112 printed radio lessons prepared by the U. S. Department of Agriculture. Now it is the radio schoolmasters turn.

(The characters speaking during this lecture are: The Professor himself; and Owens and Miller, members of the class.)

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(Four or five raps -- as if on desk.)

THE PROFESSOR: The class will be in order!

At the end of last class, one of you men asked me a question. You were inquiring something about the amounts of the different kinds of meat eaten in this country --

But before we get to that, I suppose you all know that the United States produces and consumes annually more meat products than any other country ---- (As if interrupted) ---- Don't you agree with that, Miller?

MILLER: Don't they eat more meat in Argentina than we do?

THE PROFESSOR: No. As a nation we raise and eat more meat than any other country, Individually, however, the people in Argentina, Australia, New Zealand, and Canada, eat more ---- that is, the per capita consumption in those four countries is larger. That's because those countries have a sparse population and big surpluses of cattle and sheep.

Argentina, Australia, and New Zealand are now the great sources of the world's surplus of beef and mutton. Consequently, those products are abundant and cheap there.

But naturally a large number of food animals must be raised every year in the United States in order to supply enough meat for our ever-increasing population.

Fortunately, you farmers and stockmen have been able to meet the demand up to the present. And in the case of hogs, you normally have a considerable surplus for export in the form of bacon, hams, and lard.

In 1925, the last year for which complete figures are available, there were slaughtered in this country nearly 15 million cattle, slightly over 10 million calves, more than 15 million sheep and lambs, and over 68 million swine. That is to say, more than one animal is slaughtered every year for every man, woman, and child in this country ---- (As if interrupted) Well, Owens?

OWENS: How much of each kind of meat would that make for each person?

THE PROFESSOR: Well, the per capita consumption of beef in the United States was 62.1 pounds and of veal was 8.7 pounds, or 70.8 pounds of beef and veal combined. Hog meat averaged 67.6 pounds per person, while an average of only 5.2 pounds of mutton and lamb was eaten. That makes the total amount of meat per person in this country 143.6 pounds. In addition, we averaged 13.2 pounds of lard per person.

OWENS: Do they eat the same proportion of the different meats in other countries?

THE PROFESSOR: No. The figures indicate that in proportion to total amount of meat eaten, the Germans are the biggest pork eaters although Canadians eat more per capita. The people of Argentina eat the most beef in proportion to other meats. And the British meat dietary has the closest balance of beef, mutton, and pork, and by far the largest proportion of mutton.

In fact, the consumption of mutton and lamb in the United States has been less than 6 pounds per person in recent years. But if we ate twice as much as we now do, we would eat less than half the average amount eaten in Great Britian.

In this connection, the Federal Bureau of Animal Industry has for some time been assisting in the development of a type of sheep in this country that will yield a high quality, as well as quantity, of both meat and wool. But, of course, any increase in our mutton and lamb consumption will necessarily be a gradual process.

MILLER: But Professor, beef and veal and pork and lamb and mutton are not the only meat we eat. How about the chickens, rabbits, and game eaten in this country every year?

THE PROFESSOR: Well, it's impossible to get reliable information as to the quantities that are eaten of those smaller animals. Partly for that reason, national statistics of meat production and consumption are generally confined to the three classes of meat we've mentioned.

Fifty years ago cattle and sheep were the principal economic animals. But that was before the American farmer got busy with his hogs and corn. Since then American swine products have penetrated the farthest corners of the earth, and they now hold a dominating position in the world's market.

MILLER: How do you get the figures on them, Professor?

THE PROFESSOR: The estimates are based on the numbers of animals which are slaughtered under Federal meat inspection. Statistics of these animals are known definitely. They are published monthly. Roughly speaking, they form about two-thirds of the total slaughter, The other third is estimated.

You know practically all meat and other products emanating from packing establishments come under the supervision of the government. That is very important from the standpoint of public health ---- but we will have more to say on that subject a little later in the course.

Next week we are going to discuss the factors which influence quality in the production of meat. The millions of animals slaughtered in this country every year are not all of the same quality, as you know. You who have sold animals for meat realize that there's considerable spread between the best and the poorest grades. The differences are greater with cattle than with sheep, and least of all with hogs.

Besides the difference in quality of meat, say between a "good" 1,000-pound steer and a "common" steer of the same weight, there is a difference in the quantity of marketable meat the two will yield when dressed. This difference is found to average 6 per cent. In other words, the good steer will yield 60 pounds more of marketable meat than the "common" steer of the same live weight.

But the spread between the highest and lowest grades is much smaller in the case of hogs than with either cattle or sheep. The reason for this may be largely attributed to the fact that the average market hog has both uniformity and quality.

In short, the average hog is better bred than the average cattle or sheep. This is proved by the census which found that purebred hogs greatly outnumber the purebreds in other classes of farm animals.

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UNITED STATES DEPARTMENT OF AGRICULTURE
Radio Service
OFFICE OF INFORMATION

PROGRAM U. S. RADIO FARM SCHOOL SECOND RELEASE Mon. Jan. 31

SHORT COURSE: Hides, Wool, and Mohair.

LECTURE No. 2: Practical Points in Skinning and Curing Cattle Hides.

ANNOUNCEMENT: In our next short lesson the radio school master will give you some practical points in skinning and curing cattle hides. Please remember, all new comers to Uncle Sam's Radio Farm School, that 216 printed radio lessons are yours for the asking. In my hand here, before the microphone, I'm holding your copies of these 24 attractive little booklets. If they look good to you request enrollment in the Farm School and the U. S. Department of Agriculture will put you on their mailing list.

(The characters speaking during this lecture are: The Professor himself; and Berry and Moss, members of the class.)

* * * * * * *

(Four or five raps -- as if on desk)

THE PROFESSOR: Members of the class will please find seats! ----

Last week we emphasized the importance of better country hides. We tried to show that you are skinning yourself by not skinning carcasses carefully; curing hides properly; and shipping them promptly.

-----Our country needs more goo leather and you can help by producing better hides and skins -------

Since the last lecture, (that time,) several members of the class have asked for more details about skinning and curing. I answered their questions --- but if there are any of you here who want to know more about how to get better hides --- don't hesitate to speak up ----

If there are no questions, we'll go ahead with the discussion of how to get better prices for better hides --- (As if interrupted) All right, Berry --- what's your question?

BERRY: I just want to know more about how to take off the hide?

THE PROFESSOR: Well before you start -- be sure to clean the animal's hide as much as practicable. Get off all the mud and other dirt ---- but don't injure or scar the hide in doing it.

A great deal of damage results from carelessness --- particularly

in cleaning calves. Any tool you use -- use it with care. Don't use an old-fashioned curry-comb with its sharp and usually rusty, jagged teeth. A comb with dull teeth or a fiber brush and water, preferably from a fountain attachment, is much safer. You know, the hair or grain side of a hide or skin, especially of young animals, is easily marred. These injuries show up as blemishes in the finished leather --

BERRY: (But,) Professor, how about sticking? Does it make any difference which way you cut a steer's throat?

THE PROFESSOR: Certainly, Berry. It makes a lot of difference. Unless religious requirements prevent, you should always bleed cattle by sticking the throat lengthwise instead of crosswise. "Kosher" or "Cuttthroat" hides from "koshered" cattle, or cattle killed according to the requirements of the Jewish religion, are classed and graded as other hides and skins, but because of the marred pattern that results from cutting the throat crosswise, they usually sell for one-half cent a pound less.

And in making your ripping open cuts, make them straight with smooth edges -- and in the proper places and direction. The U. S. Department of Agriculture will send you a bulletin illustrating the proper way to make these cuts if you write for it ---- Please remember, however, if the hide is not opened up correctly, it will not have the proper pattern. If it does not have the proper pattern, it will not be worth as much for leather. The butt, belly, and shoulder portions of the hide will not be properly distributed so that the tanner will not be able to divide the leather according to the quality and value of the different sections.

In skinning, as in shaving, a keen edge works best. Use the skinning knife carefully and no more than is necessary. Keep the hide taut to avoid gashing it. But do not go to the other extreme and cut out chunks of the carcass to save the hide. Not only will that mean a loss of meat -- but if the meat is left on the hide, it may cause a rotten spot. (As if interrupted) Well, Berry?

BERRY: Last class you showed us a hide with cuts on the rump part of it. You told us not to scar the hide that way -- where it's most valuable --

THE PROFESSOR: Yes. It's very important to be careful with that part of the hide.

BERRY: Professor, the hide is so tight there -- it's next to impossible to get it off with a knife without making cuts ---

THE PROFESSOR: That being the case, Berry, I'd advise you not to take it off with the knife ----

BERRY: How's that? --- What do you mean, Professor?

THE PROFESSOR: Why, simply start it with the knife. Then beat or pound it off with your fist -- or the butt of your knife handle -- or the back of a cleaver. Hammering off while you are pulling on it is quite satisfactory.

It's a sure way to avoid cuts. --------

But you are not out of the woods when you get the skin off, Your job is just half done.

As I pointed out last time, decomposition destroys hide substance. It destroys the leather or reduces it to inferior quality. Sound leather cannot be made from unsound hides or skins. You must preserve the hide in as sound a condition as possible until it reaches the tannery.

The most important things to remember about the curing of hides are promptness and thoroughness. A piece of raw hide will spoil as quickly as a piece of raw meat. Also, like meat, if it is not thoroughly cured it will slowly rot.

After you take the hide off, spread it out smoothly, flesh side up, in a clean place. When the body heat has escaped, promptly cover the flesh side with clean crystal salt, about the size of a pea. You can use a finer, medium-sized salt for smaller skins, such as those of yearlings and calves. See that every spot is salted. Open up and salt any folds that may be stuck together. And salt the heavy spots such as the head and neck especially well. (As if interrupted) All right, Moss -- What is it?

MOSS: Professor, I understand that the tanners are urging that salt-curing of hides should be done by putting the hides in a bath of salt dissolved in water.

THE PROFESSOR: Yes. Where skinning is done on a big enough scale to justify the necessary equipment, hides should be cured by brining. South American packing plants have used that method for years, and the superiority of such hides from a leather yielding standpoint has been clearly established.

BERRY: Some people cure without salt, don't they, Professor?

THE PROFESSOR: Yes. Where the climate is hot and dry -- but curing that way is uncertain and irregular. Most tanners look on dried hides as somewhat of a gamble. They never can tell how such hides will soak back preparatory to tanning.

MOSS: What's a properly cured hide or skin like?

THE PROFESSOR: It is firm and not mushy. It is clean and bright. It is tight-haired. It is free from rotten-spots and salt-stains.

If you use care -- you can produce good hides on your farm -- Probably much better hides than you've been producing. Now next week we are going to point out how to get (the) better prices for (the) better hides.

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